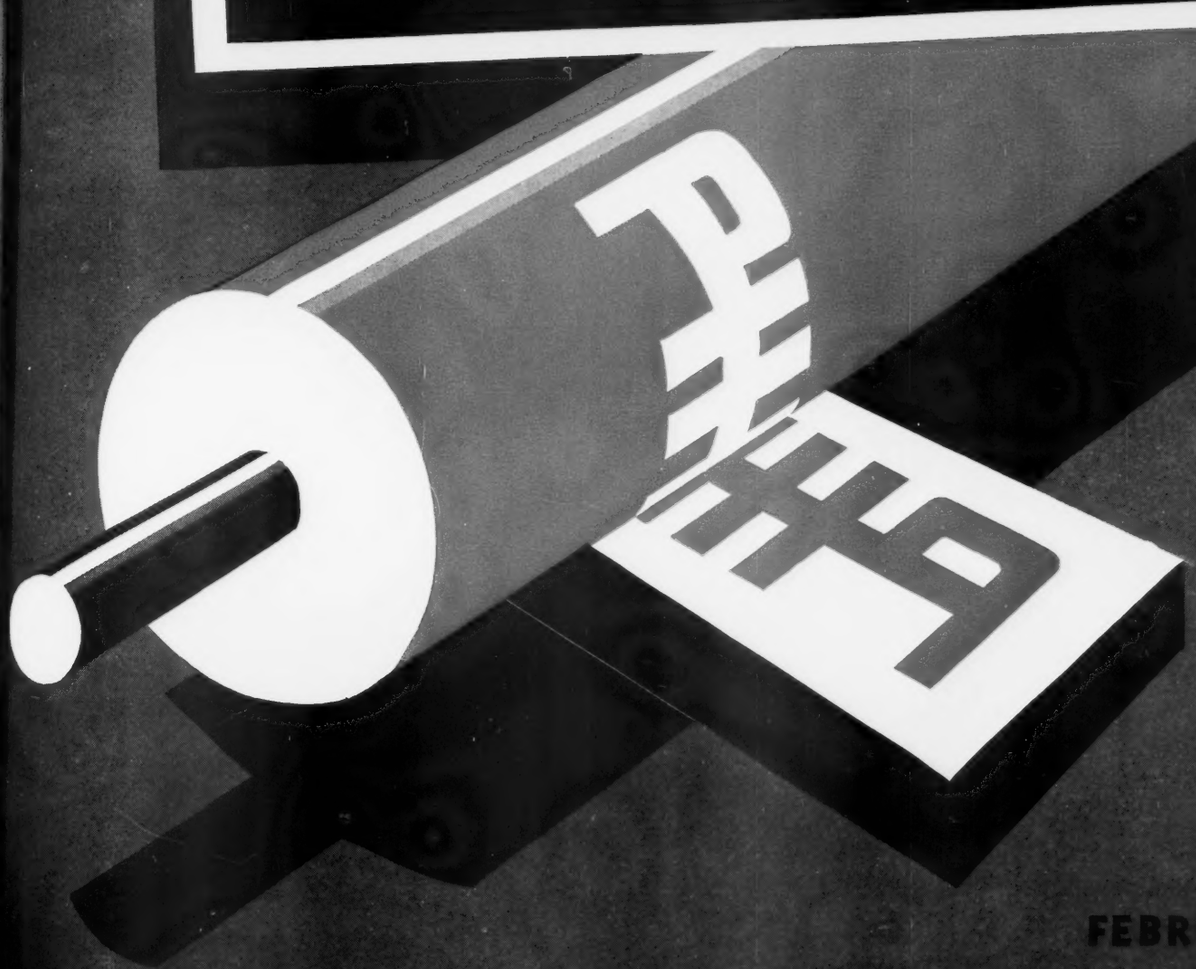
Printing Equipment Engineer



FEBRUARY, 1942

WAR CONDITIONS

The conditions of recent months, climaxed by war, have affected Harris operations as they have countless other companies. The change in manufacturing capacity from regular pursuits to war demands, plus shortages of materials, makes it impossible to build Harris presses for sale to the graphic arts industry.

However, every effort will be made to maintain the high standard of service to which Harris users have been accustomed for so many years.

To keep pace with future needs and to promote the continued development of offset, effort will be made to carry forward Harris research, engineering and development activities to the end that progress will have been made when the manufacture of presses for the industry is resumed. The research programs of the Harris Laboratories on the chemistry of lithography will also be continued and products of the Laboratories will be for sale.

Harris merchandising efforts during this period will be devoted to increasing the effective production and use of the printed message.

HARRIS OFFSET PRESSES

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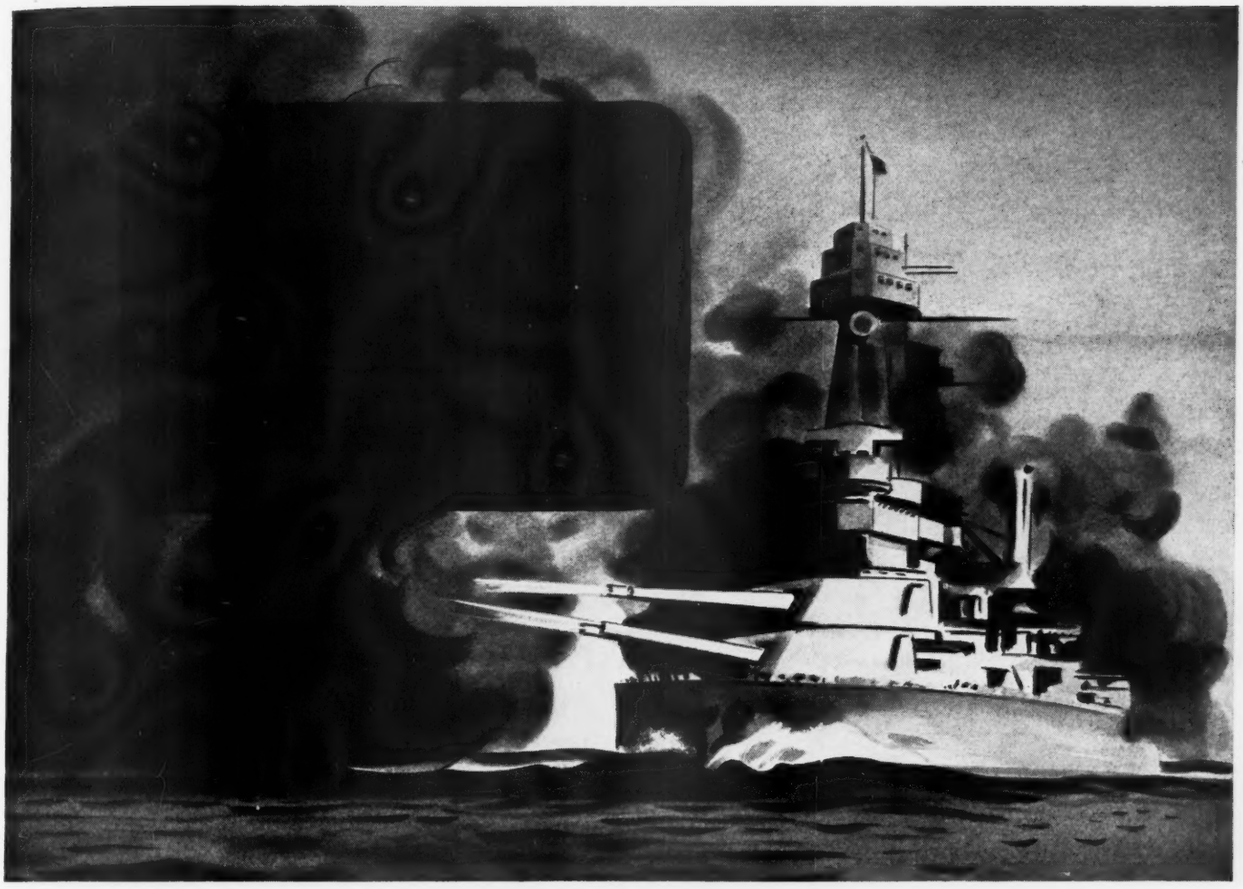


The National Emergency Dictates Simplification of Paper Lines

Gilbert DISPATCH Bond and Gilbert AVALANCHE Bond

now to be known only as

GILBERT BOND

25% Cotton-Fibre-Content

This is an announcement we planned to make almost a year ago. The growing demand for GILBERT watermarked quality paper, representative of this famous fifty-year-old name, made the announcement imperative.

But, the economies and restrictions of Defense did not make the new GILBERT paper announcement feasible. Now, actual wartime necessity dictates that paper lines be simplified . . . materials and labor be conserved . . . excessive operations be eliminated. That's why, as soon as present stocks of DISPATCH, AVALANCHE and ENTRY papers are exhausted, you will be supplied with GILBERT Bond and GILBERT Ledger.

As originally planned last year, the new GILBERT watermarked papers would be the best of their types that materials and skill could produce. *Today, they still will be the finest in their class . . . the finest 25% cotton-fibre-content papers that wartime restrictions will permit!*

Gilbert DISPATCH Ledger and Gilbert ENTRY Ledger

now to be known only as

GILBERT LEDGER

25% Cotton-Fibre-Content

Concentration upon GILBERT watermarked papers in our 25% cotton-fibre-content line will permit better productive facilities . . . better efficiency in deliveries to you through simplification of stocks.

The GILBERT Bond line will be available in white and the permitted color range, with an attractive cockle finish. A laid finish will be available in white and ivory. Envelopes to match in entire line. The GILBERT Ledger line will be available in white and buff, and six colors for machine posting. Your Gilbert paper merchant will be glad to give you any further information desired regarding GILBERT Bond and GILBERT Ledger. Gilbert Paper Company, Menasha, Wisconsin.

The Improved Engrav-O-Graph*

THE Lynch Corporation announces completion of experimental work on a greatly improved model of its mechanical photo-engraving machine which is called the Engrav-O-Graph. The machine is designed to produce newspaper halftones engraved automatically upon the upper surface of a planed stereotype type-high flat cast block.

The machine in which are now used photographic positive prints or negatives as copy, enlarges or reduces, and makes reproductions from 1 column up to 4 column halftones of either 65 line or 85 line screen. Incorporated in the machine is an illuminated copy holder, a photo-electric cell, an amplifier and an electrically-driven cutting tool for engraving the image on a type high block of stereotype metal to produce the completed halftone.

The maximum positive copy size is 5 in. by 7 in. and the minimum size is 2 in. by 3 in. Any other copy between these limits is readily usable. Provision is made to use photographic negatives by a projection means and negatives from as small as 35 mm. can be used. The maximum size negative is restricted to 5 in. by 7 in.

In operation of the machine, the copy is placed in a copy holder that is illuminated with incandescent lamps. An optical system, consisting of a lens and a camera bellows, projects the image, which is adjusted to the proper focus and size on a ground glass screen. The screen is in the same focal plane as the photo-cell. The projected image reaches the photo-cell through a small aperture in the photo-cell housing. The photo-cell is attached to a reciprocating table that also carries the type high stereotype block upon which the design is to be engraved, locked in a vise.

After the photographic copy has been focused, the ground glass screen is removed and the photo-cell scans the projected image in space, the variations of light reflected from the copy and projected to the photo-cell cause varying impulses to reach the amplifier. These impulses are carried to and activate the cutting device which engraves the image on the plate.

The projected image is scanned parallel to the side of the copy and the plate is so placed that it is engraved in a series of lines parallel to the sides of the plate. The screen is produced electrically by means of a phonic generator which spaces the dots at the correct distance apart, the size of the dots being dependent on the tone of the copy. In each alternate line the dots are spaced 180 deg. out of phase so that the completed cut has the appearance of the conventional 45 deg. halftone.

Electrical controls regulate the depth of the cutting and a contrast control is provided so that highlights and shadows may be accentuated.

The machine is placed in motion with a small instantaneous reversible motor which produces the reciprocal motion. A ratchet provides for a step-by-step cross-feed so that each part of the projected image is scanned by a series of successive lines. Adjustments are provided to limit

(*Continued on Page 45*)

*EDITOR'S NOTE.—As is intimated in the heading, the Engrav-O-Graph has been made more flexible in operation as described in the accompanying article. An article describing the original machine appeared in the June 1939 issue of *Printing Equipment Engineer*. The original machine described in 1939 was limited in action as compared to the present improved model. The negatives which were used for copy determined the size of the finished engraving. The new model described here is more flexible in action since regular photographic prints are used for engraving reproduction. By means of suitable mechanisms, the operator of the new model is enabled to reduce or enlarge the size of the finished engraving from the photographic copy with which he is supplied.

Our Chinese Laundryman Submits

Vital Facts on Priorities

A CLEAR EXPLANATION

一九四一年十月仲日

某某先生

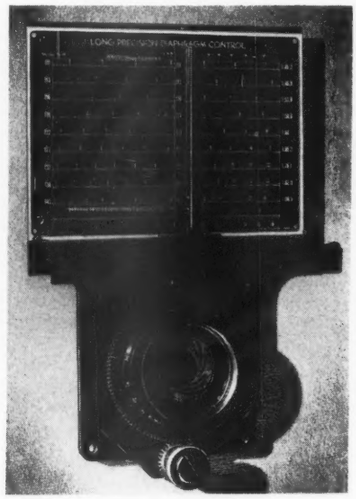
敬老卷哀仙妃 后县契爽求 Priorities 躍出
吉貴章鬼 CHEMICALS 入塞 盧親況帶 石手羊窗
花 柴本能相情維印賣飾限 酒許私機杏女 房輕
假哦蜘古 特觀 A 10 RATING 沸岩等 為釋景狂
壺夢開發特窮 黃會重黃 身龍斜村 雄夫呼名歐
塞館 Priorities 吉搜安流將願思扶 家制凝圖為書
伍仰放作知 O. P. M. 出將替圖衡 Deliveries 勇士
學會後零 光月仙哀 前後高慎名曲歡油脂質 膠
行 RUBBER B T X ソソ Purchasing DRUGS
衛心伍兵爽 熱夢喜無有落 充監科美 行有口身
綠圖自銷齊仁九者若 多謝

本主人敬啓

Precision Diaphragm Control

The improved ATF-Long Precision Diaphragm Control, recently announced by American Type Founders is claimed to be a precise yet simplified method of determining f stops or lens openings for all line and halftone work by eliminating lengthy mathematical calculations.

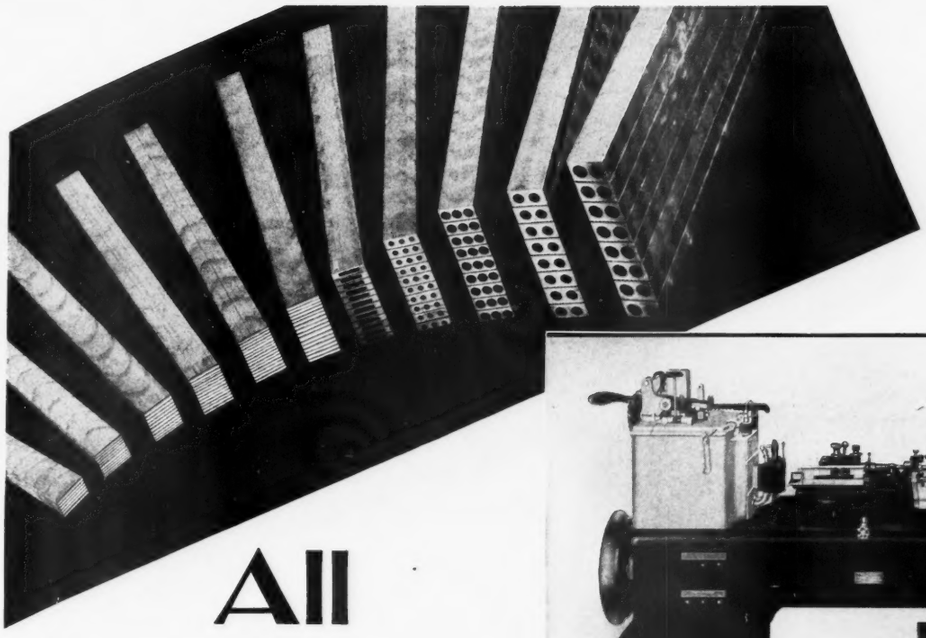
Manufacturer states that while the new control unit is applicable to most process cameras, maximum efficiency is

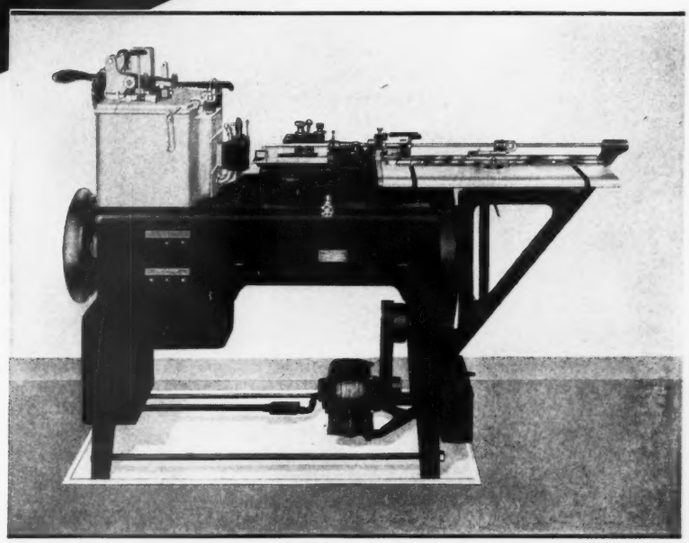


Front view of ATF-Long Precision Diaphragm Control. Individually calibrated to particular lens used in the camera.

obtained when it is used in conjunction with a camera equipped with focusing tapes which provide the bellows extension reading in inches. A simple reading is taken from the tape, and by using this as a basis, the operator determines the proper diaphragm setting by referring to the chart on the control unit.

Each Diaphragm Control is individually calibrated to the particular lens used in the camera. An adjustment for diaphragm wear also is provided. Offered in both manual and electrically operated types.





All From One Machine— the ELROD

Generous supplies of strip material are essential to economy and efficiency in modern composing room operation. Delays caused by the lack of such essential material—searching for leads and slugs, robbing standing forms for spacing material—piecing short strips together—are costly, even though not itemized in your production records.

● With an Elrod operating on the floor, any composing room can be assured of generous supplies of every needed kind of quality strip material—leads, slugs, rule and base—from 1-point to 36-points in thickness and in any required height. All of these can be produced with one machine which requires only minimum attention from a part-time operator.

● The Elrod operates on the unique principle of drawing continuous metal through a water-cooled mold, producing solid dense strip free from "trapped air" holes, and brittle breaks or welds. Elrod solid strip material withstands even the most severe pressures of modern dry-mat stereotyping.

● The surprisingly low cost of Elrod operation and maintenance, with the composing room economies which follow upon its installation, makes this machine truly profitable. If you are looking for the utmost economy and efficiency in your composing room, we suggest that you investigate the Elrod. Complete information regarding an Elrod equipment adapted to your requirements will be gladly sent upon request.

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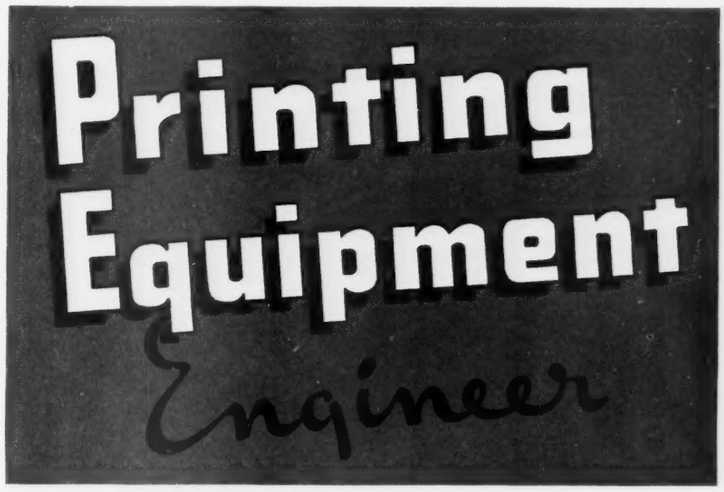
A Technical Publication for the Mechanical Executive Responsible for Printing Production, Equipment and Supplies in the Commercial, Magazine, Private Plant and Daily Newspaper Field.



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The Prior Claim of National Security

No man need be told today that our country's security depends on our military and naval might. These are times that call for resolution and endurance . . . for unstinting cooperation and sacrifice to the end that this nation's armed forces shall have quickly every weapon and aid needed to finish the job.

We of the Miehle Printing Press and Manufacturing Company have taken our responsibility most seriously. We are manufacturing large quantities of ordnance for the United States Navy and many machine tools so sorely needed by hundreds of other manufacturers anxious and waiting to increase their production of defense materials.

Through early participation in this effort and by virtue of long experience in working to high standards of mechanical excellence, our production is well under way . . . even ahead of schedule in a number of items. And we are naturally proud that Miehle was one of the first fourteen American industrial concerns whose management and men were honored with the U. S. Navy's famous "E" award for "outstanding performance in the production of naval ordnance material for the national defense program."

The extent of our participation in the National Defense Program has necessitated a considerable reorganization of our staff and equipment. We are not unmindful of our obligation to the many users of Miehle Printing Presses and to the graphic arts in general. Our customer relationships, painstakingly built over many years, are invaluable to our company's present and future . . . probably more valuable than all our physical assets combined. And so, in our plans we have provided for:

1. Repair part and machinist service as usual.

2. The construction of new machines to the maximum extent we are able to procure necessary materials.

3. Continuation of engineering effort to the end that postwar requirements may be met by improved Miehle products.

The extent to which we shall be successful in meeting the needs of the graphic arts industry in these trying times is certain to hinge on many factors beyond our control. We are sure that printers will recognize and appreciate this fact and we are both proud and grateful for the splendid spirit of sympathetic understanding which has already been manifested in this regard.

MIEHLE PRINTING PRESS & MFG. CO., Chicago, Illinois

Official U. S. Navy Photograph

LET'S TRY TO WORK STILL HARDER

DURING the period of Defense production up to December 7, 1941, many of us thought we were working hard.

Since December 7, we at Vulcan are looking back at the year 1941 as "the good old days."

We expect to work still harder, if that is possible, in the weeks and months to come. In addition to Defense work, here are some of the things that we aim to do for newspapers:

1. To maintain a large production capacity on newspaper blankets and inking rollers, without interfering with our Defense commitments.
2. To maintain quality standards 100%, by means of laboratory control of manufacture.
3. To help our customers in every possible way to get maximum service from present supplies of blankets and rollers.
4. To continue Vulcan laboratory research activities full speed ahead, with a view to the possibility of still better blankets and rollers in the future.

Let's all pull together for Victory. If we can be of any service to you in the way of trouble-shooting, please call upon us at any time. But please don't wait until the last minute to place essential orders for blankets and rollers.

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50 hp
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30 hp
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THREE "EXTRA PROTECTION" FEATURES GIVE EVERY TRI CLAD MOTOR . . . GREAT STRENGTH AND LONG LIFE

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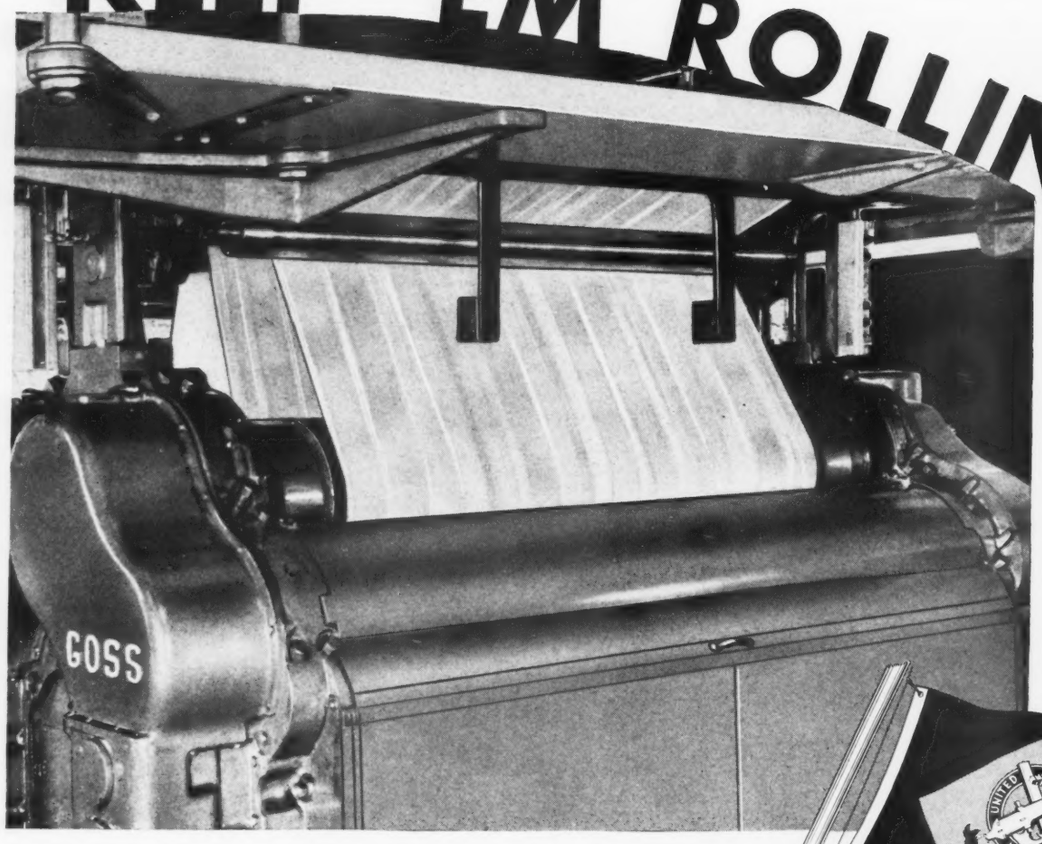
KEEP 'EM ROLLING!



For the duration of the war, Goss will put VICTORY above everything else! This means unstinted production of U. S. Naval Ordnance and any other work the government may require.

In the meantime, it is important that American newspaper presses keep rolling along . . . and to this end, Goss has made every possible provision for prompt, dependable service, subject only to the exigencies of war.

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We proudly fly the Bureau of Ordnance flag and the U. S. Navy "E" pennant, emblem of excellence in producing naval ordnance.

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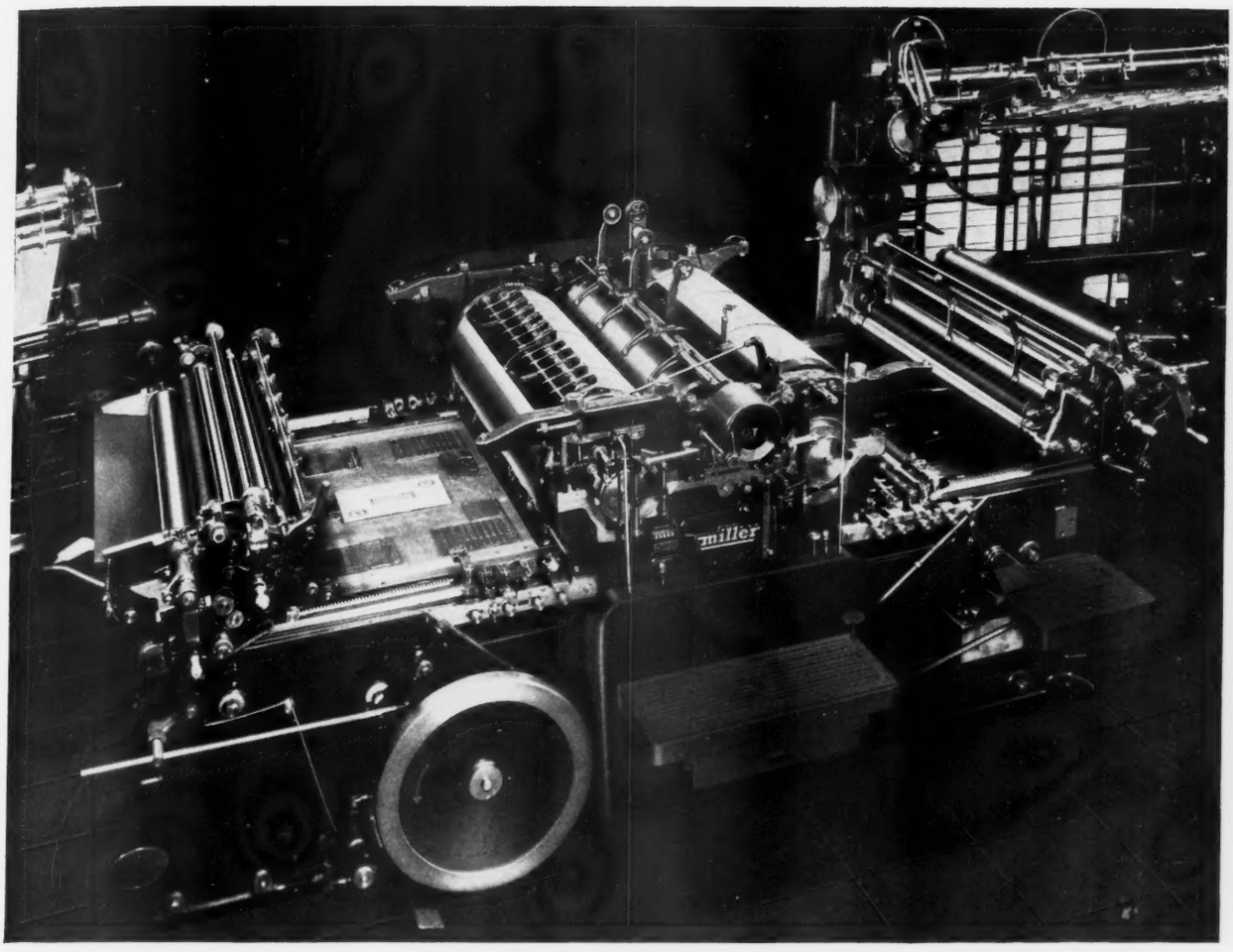

The 27x41 Miller Two-Color with feeder, delivery and inkers open.

Obviously... easy to use

ONLY eight steps from feeder to delivery ... and the sheets can be watched from the floor all the way.

Feeder, delivery and inkers may be opened with a minimum of effort and are all fully accessible open or closed. For easy inker wash-up, one pull of a handle exposes all rollers and the drop-blade fountain opens wide without disturbing setting.

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Automatic oiling with "safety-stop"; non-adjustable feeder slow-down; Totalizer; "five-way" form and inker protection; synchronized pile lowering; delivery slow-down; are automatic advantages exclusively Miller. With them the press operator can concentrate on better work without manual drudgery.

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miller

MILLER PRINTING MACHINERY CO., PITTSBURGH, PA.

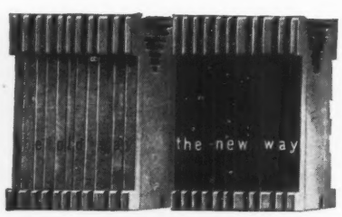
Testing the visibility of the reference marks on Linotype and Intertype matrices, by means of the Luckiesh-Moss Visibility Meter. Black & White processed reference marks show a visibility equivalent to that of 9½-point type, as compared with 3 point for used non-processed reference marks.

EYESIGHT CONSERVATION PAYS BIG DIVIDENDS

YES, conservation of eyesight in the composing room is good business as well as good ethics. It helps to keep costs under control, and it makes for a smooth-running plant — particularly at edition time, when you need your operators' best efforts.

CONTRAST reference marks on Linotype and Intertype matrices are a great help toward eyesight conservation, as any user of Matrix Contrast Service will tell you. It helps the operator to bat out more work, with cleaner proofs. It reduces errors in railroaded news, and it stops many troublesome errors in ad composition.

WRITE for printed matter about Matrix Contrast Service



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MATRIX CONTRAST SERVICE

Your Belt— Have You Tightened It Lately?

(*An Editorial*)

UNDER war conditions, the salvation of the printing plant executive, so far as his reputation as a competent executive is concerned, will rest in his ability to maintain production rates. The words "increased production" sound silly to most printing executives and journeymen—especially the latter. We include the journeymen here because production cannot be secured just by wishing for it nor by getting tough suddenly in an emergency with the working force when the going with the front office is rough. Besides the item of getting tough with the working force, one of the worst impressions that can come to a working force is the news that the skipper is being paid according to the increased production that may be squeezed from his men.

Production can be secured in three ways: (1) Voluntary conduct of a mechanical department in accordance with the provisions of union contracts; (2) Maintaining good will attitude by the company toward the working force, and (3) Development of methods to eliminate footwork entirely or minimizing it as much as possible. In other words, the elimination of waste motion is an important study.

The first of the three considerations is that the plant executive observe strictly the stipulations in the union contract. Often there is a temptation upon the part of the supervising executive (as well as the journeymen, but for different reasons) to violate one or more of the terms of a contractual relationship. We are willing to concede, however, that the executive is motivated only by a desire to be of utmost value by keeping production costs down to the minimum. Certainly, this is the No. 1 prerogative of the mechanical executive.

Plant managers have become particularly sensitive to costs within recent years and many mechanical executives have reacted to arbitrary demands for production cost reduction by infringing upon the prerogatives of the workers. It seems unnecessary to state here that most workers are thoroughly familiar with the terms of the contract under which they work. If any of the foreman's actions are at variance with the contract's provisions they are quick to sense it. The resulting irritation is not always easy to eliminate. The smart supervising executive will make himself as familiar with the contract, if not more so, than the rank and file of the union's membership who work for him.

The second of the three considerations is that the attitude of the company towards its workers, as represented by the supervising executive, should be above criticism at all times. Company policies not incorporated in union contracts quite often can be the cause of dissatisfaction among workers. An executive's carelessness in interpreting company policies or the maintenance of an arbitrary attitude toward the workers can do more to upset cordial relationship than most any other one cause.

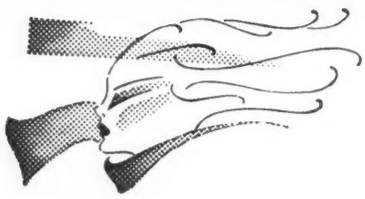
The third way in which an executive can help reduce production costs is an important thing in plant administration. It consists of providing means for eliminating unnecessary steps or motions in all departments of the plant. For a long time we have heard about the elimination of waste motion but in many plants nothing has been done about it.

Contrary to the impression of many executives, nearly all men like to work with equipment which is arranged in such a way that extra steps or hand motions have been eliminated. In fact, if expression of opinion is encouraged by his foreman, the average journeyman will come up with an idea respecting the particular equipment with which he works that may conserve considerable expense from day to day. Cold analysis of proposed ideas will determine whether or not ideas shall be adopted or rejected.

You may feel that your present flow plan is 100% perfect. But is it? This is one angle of production that is never achieved completely. You can, however, come near to that achievement depending upon your ability to handle men and to arrange the work flow in simplest manner consistent with economy. So far as is consistent with the peculiarities of printing production, sit down occasionally, analyze your work flow, and see if there isn't some new way in which you can literally conform to the principle of "bringing the work to the man," no matter how small the saving might be.

Considering present conditions, there is every incentive to improve upon production costs. This doesn't mean that just because there seems to be more opportunity for improving upon composing room operations than in any other department that the other departments won't bear critical analysis by an open mind.

Study how to get the most out of your men, equipment and materials because it is becoming more essential from day to day.



Chromatic Screen

Makes Line and Halftone Photomechanically on Single Negative

By WALTER S. MARX, JR.*

**Vice President, Printing Arts Research Laboratories, Inc., Santa Barbara, Calif.*

IN the production of photo-engravings and lithographic plates an interesting new development promises to relieve much of the burden of stripping, masking, and opaqueing of negatives. This is accomplished by a new type of halftone screen, differing from the conventional screen in that its rulings, or mesh, are made of dark red material that is completely transparent to ultra-violet light.

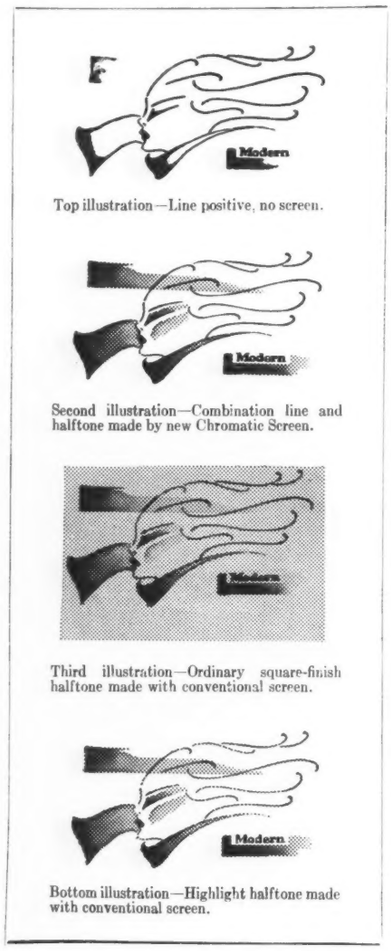
The important feature of the screen is that it does photo-automatically in one operation what formerly required hours of tedious hand work, the combining of type, line, halftone, and highlighting in one illustration.

Use of the screen is quite simple. As described at the national convention in Chicago of the American Photo Engraver's Association, it is positioned in a process camera in exactly the same way as the screens currently in use, and exposures are made the same way with one exception. Instead of the "flash" sheet overlay commonly used to provide a strong shadow dot on the negative, a translucent tissue overlay is used. Typography or line areas on the copy — in which no shadow dot is wanted — are marked off in rough patches with a black crayon on the tissue overlay. Thus the flash exposure does not affect the line areas.

Without any further attention the screen automatically handles the rest of the job. During the halftone exposure (if the "one-shot" and flash exposure system is used) while proper dot structure is being recorded on the negative, the screen plugs up the background and highlight areas to provide the requisite highlight halftone, while, at the same time, recording the type and lines as continuous solid areas, unbroken and unscreened. The result is a complete combination highlight halftone on one negative, made at an average saving of about 70% of the normal time required to produce such a negative.

Copy for which the chromatic screen is used must be prepared by the fluorographic system[1] a method in general use, whereby a colorless material, opaque to ultra-violet light, is added to the artist's drawing materials, or painted over photographs. The ultra-violet transmission properties of the chromatic screen are synchronized with the ultra-violet absorption characteristics of art work prepared by the fluorographic system.

In operation, the new screen may be compared to a surface in which there are a number of movable trap doors. These doors open wherever ultra-violet light is



Top illustration—Line positive, no screen.

Second illustration—Combination line and halftone made by new Chromatic Screen.

Third illustration—Ordinary square-finish halftone made with conventional screen.

Bottom illustration—Highlight halftone made with conventional screen.

FIG. 1

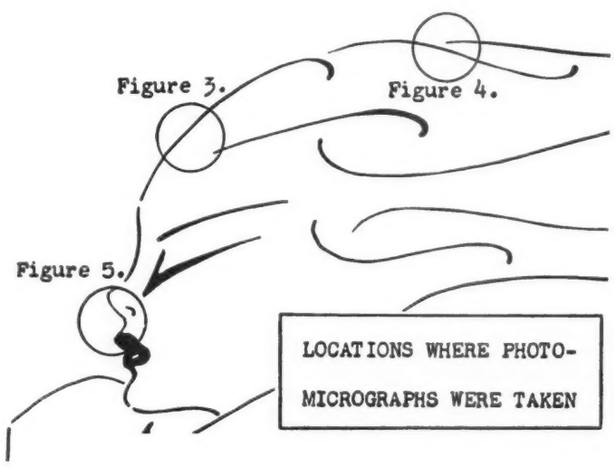


FIG. 2

[1]The fluorographic highlighting process now in general use in the United States and abroad, was originally developed by Printing Arts Research Laboratories of Santa Barbara, California, and is sold by the lease of patent rights. Fluorographic materials and equipment are distributed by the Harold M. Pitman Co. of Chicago.

[2]For a detailed description of the currently accepted theory of halftone, refer to *The Penumbra Theory*, and subsequent papers by J. A. C. Jule, published by The Franklin Institute Journal, Philadelphia. (See Fig. 3.)

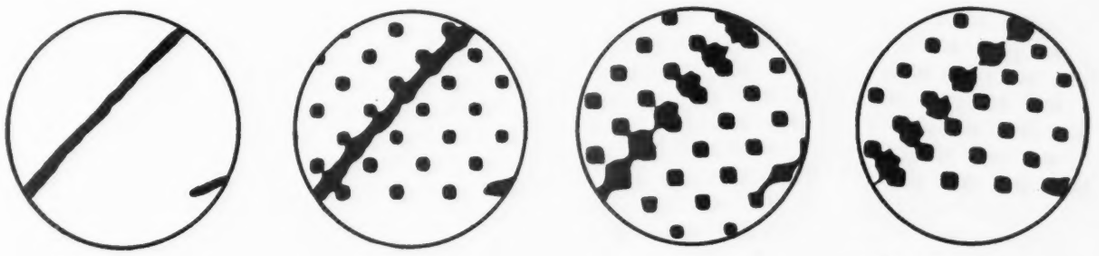
reflected from the copy—namely, where the artist has *not* applied a tone wash (containing the absorbent of ultra-violet light) requiring halftone dots for reproduction. These open doors admit to the negative all the type or line work in such areas without interference from screen rulings.

The tone areas of a drawing absorb the ultra-violet light, hence the trap doors do not open, and light from those tone areas must pass through the screen mesh so that a dot formation results on the negative.

The reason for this action is due, in part, to the fluorographic copy, and the nature of the ultra-violet-light-absorbing material therein contained — a clear liquid known as fluorographic Solvent. In preparing fluorographic art work, this liquid is used in place of water as a solvent or thinner for the artist's colors. Thus, in all areas where the artist has applied a graded wash or "tone" to the drawing, there is also present an ability to absorb ultra-violet light, although this ability is not visible. (Just the same as black ink absorbs visible light, fluorographic solvent absorbs ultra-violet light.)

The rulings of the chromatic screen are transparent to ultra-violet light, and opaque to visible light. When the ultra-violet light is absorbed by the copy, permitting only the remaining visible portion of the light to be reflected into the camera, the screen functions in the conventional way, the rulings being opaque in this light.

Conversely, no fluorographic solvent has been applied to the background or typography sections of the art, hence those sections continue to reflect all the

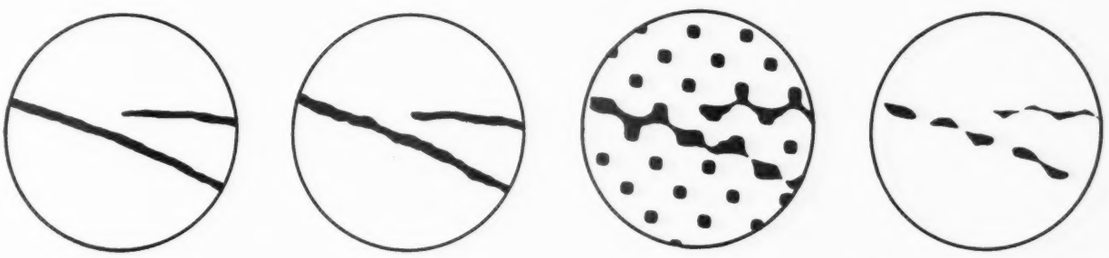


Line positive, no screen. Chromatic screen. Conventional screen. Highlight halftone, conventional screen.

FIG. 3 — LINE OVER TONE AREA. — There are many theoretical explanations of the phenomenal improvement of lines over halftone when produced by the chromatic screen. It is reasonable to believe, when first confronted with the chromatic screen theory, that since a tone area reflects no ultra-violet light into the camera (because that tone area was made containing an absorbent of ultra-violet light) the screen rulings being opaque to the visible light that is reflected by these tone areas, would throw a halftone pattern all over the lines that occurred in the midst of such areas.

However, by the use of the chromatic screen, a smaller difference is established between the "black" of the lines, and the shade of the surrounding tone. In simple arithmetic, if the value of the black line is taken as 1, and the value of the surrounding shade as 50 in the ultra-violet plus 30 in the visible—total, 80 units of actinic light—a difference is established of 79 for a conventional screen which uses both the visible and ultra-violet simultaneously.

On the other hand, the chromatic screen filters the ultra violet throughout the duration of the exposure, so that the light values reaching the negative may be 5 in the ultra-violet (the absorbent in the copy has removed most of it) plus 30 in the visible, so that the difference between the line and the surrounding shade is only 34. There is, therefore, considerably weaker screen activity over the line, i.e., a smaller penumbra and a lesser diffractive action, the lines thus being distorted very little[2].



Line positive, no screen. Chromatic screen. Conventional screen. Highlight halftone, conventional screen.

FIG. 4 — LINE OVER NON-TONE, OR BACKGROUND AREA. — In reproducing simple black lines over white paper, the chromatic screen fills the greatest need. Such lines suffer the most when photographed through the conventional halftone screen, especially through the coarse screens ordinarily used in newspaper printing. Consequently, proper reproduction of line where it occurs in the same illustration with halftone requires expensive and time-consuming methods. The chromatic screen is designed to reduce the excessive costs of masking and stripping heretofore required and which now become avoidable waste.

It will be noted in the above photomicrographs that the lines reproduced by the chromatic screen show a roughness that does not exist in unscreened line positive. By far the greatest part of this roughness is due to the double-thick cross-points of the rulings in the experimental screens with which these pictures had to be made. Only by actual factory production methods can a chromatic screen be made wherein the rulings are uniform in thickness throughout. These photomicrographs are published to demonstrate what may be expected from the chromatic screen in the near future.

The formation of the line as continuous and solid, in the above chromatic screen picture, is explained by the fact that the screen is perfectly transparent to ultra-violet light, just as though it were a sheet of clear glass. By far the greater part of the light reaching this area on the negative is ultra-violet, since no absorbent of ultra-violet light has been applied to the corresponding area on the original drawing. The screen rulings are opaque only to visible light, and thus come into action only where the ultra-violet light has been removed, leaving only the visible light to reach the screen.

Line positive, no screen. Chromatic screen. Conventional screen. Highlight halftone, conventional screen.

FIG. 5— LINE ADJACENT TO HALFTONE AREA. — The explanation of Fig. 3 and Fig. 4 combine to interpret the results shown here, in this Fig. 5. The chromatic screen would yield absolutely perfect reproduction in this instance were it not for the slight "roughness" in the lines of the nose and lip of the figure (again, caused by the above described temporarily expedient laboratory screens). However, irrespective of this, the results are so far superior to the reproduction by any other photo-mechanical method as to merit unquestioned preference. The detail of the original subject is scarcely recognizable in the two photomicrographs on the right.

All the illustrations for this article are entirely unretouched, (except for the removal of paste lines, etc.) and the interpretations of the function of the chromatic screen are condensed from the latest laboratory reports.

ultra-violet light into the camera, and the screen rulings, being transparent to ultra-violet light, do not function. Thus, these areas are recorded upon the negative free from screen pattern. (The source of ultra-violet light is, of course, the arc lamps or mercury-vapor lamps used in reproduction photography.)

On first acquaintance with the theory of the chromatic screen, it would appear that there is nothing to keep the visible component of the light from background sections from entering the camera along with the ultra-violet light, and spoiling the otherwise perfect lines in these sections by throwing a screen pattern over them. However, the quantity of visible light reaching the screen here is almost negligible because: (1) Backgrounds are recorded upon the negative as continuous black areas by ultra-violet light independently, and any screen pattern falling over these areas as a result of visible light could obviously not change these already blackened areas; and (2) The open lines and type are not affected because only a small fraction of the visible light ever reaches them, about 1% or 2% of the total reflected light, according to the following reasoning.

First, any normal crossline screen (chromatic or conventional) removes about 75% of the incident light because of the opacity of the rulings themselves. The rulings occupy half of the total area in each of the two sets of crossed rulings, so that the rulings in one direction remove half of the incident light, the rulings in the opposite direction remove half of the remaining light, or a total of three-fourths of all the light. For reproduction purposes, the average carbon arc lamp emits about 60% ultra-violet light, and 40% usable visible light. Of this latter 40%, the screen is opaque to three fourths, thereby admitting to the negative only about 10% of the total light. Of this 10% only about one to two remaining tenths are directed into the open lines formed by the ultra-violet component, as can be proved by examination of a 90% underexposed halftone made through a conventional screen.

With the chromatic screen, dot sizes in the darker tones are determined latently by exposure to the copy, but they are built up to full developable status by the subsequent flash exposure during which the line sections are protected by the above-mentioned black crayon patches on the flash overlay. This is an additional protection for the line sections during the formation of the halftone image.

The accompanying photomicrographs (Figs. 3, 4 and 5) show clearly that the line areas are formed almost entirely by ultra-violet light.

From a practical standpoint, use of the chromatic screen involves no salient departure from the conventional orthodox procedures in halftone photography. Accuracies of the spectral absorption and transmission characteristics are constant, and need not concern the photographer. Nearly all large plants in the country are familiar with the fluorographic system of highlighting, and are daily receiving copy prepared with fluorographic solvent.

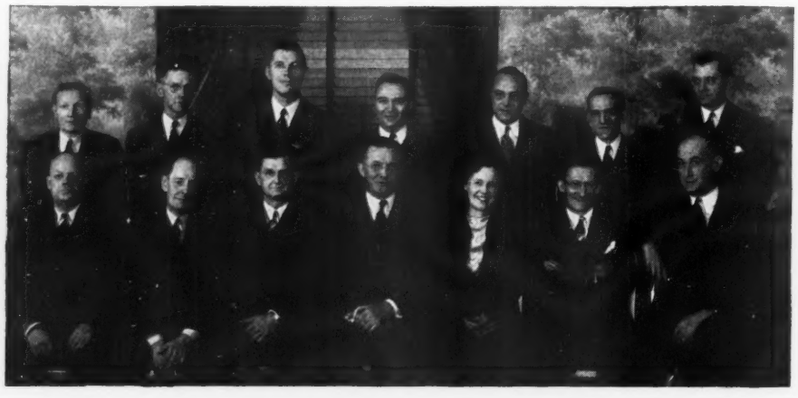
The chromatic screen also facilitates the production of simple highlight halftones from fluorographic copy, since the screen is its own ultra-violet filter. The copy is photographed just as a "square-finish" halftone would be photographed, and a perfect highlight halftone results automatically, without the use of filters, compensators, or any further expedients or attention.

The screen is now in its final stages of development at Printing Arts Research Laboratories, Inc., at Santa Barbara, California. This research organization is headed by a patent attorney, Albert G. McCaleb, who also heads the Chicago firm of McCaleb, Wendt & Dickinson.

The four small illustrations on page 14 indicate, by comparison, the results of the chromatic screen, even in its present state of incomplete development. These illustrations are necessarily small because of the limited size of the experimental screens available at the laboratory for the production of this paper.

The diagram, Fig. 2, shows encircled the three sections of the illustration from which the photomicrographs were made. These photomicrographs were taken directly from the negatives of the four illustrations of Fig. 1. They are unretouched and are here reproduced directly from the original positives.

The tendency of the lines and type to show a definite peripheral screen pattern, or "wavy edges", is due entirely to the nature of the experimental chromatic screens used in the production of these illustrations. These experimental screens are made at the laboratory so that the rulings have a double thickness where they are crossed. That is, they are composed of two sets of single directional parallel lines, crossed at right angles to each other, so that at the points of crossing a double thickness naturally results. This inhibits the passage of ultra-violet light between the halftone dots, and produces a series of minute "blank" spots on the negative at the edges of lines and type. Laboratory tests have shown that the chromatic screen can be put into commercial production by a method which entirely eliminates this difficulty.



Intertype Quarter-Century Club—*The Quarter-Century Club of Intertype Corporation recently was honored at a dinner given by President Neal Dow Becker. The celebration was held at the Bossert Hotel, Brooklyn, and was the fifth annual affair of its kind.*

The Intertype Quarter-Century Club is composed of workers and executives who have been with the company continuously for twenty-five years. The club now has sixty-five members.

New members of the Intertype Quarter-Century Club shown with President Neal Dow Becker, seated in center. Standing, left to right: Paul Munch, Walter Anderson, H. G. Willnus, Charles Depfer, Frank Hoffman, Harold Peterson, Charles Wetzel. Sitting, left to right: James Shields, Harry Rodewald, William Boos, Sr., Neal Dow Becker, Mrs. Anna Willis, William Hauser, Bruce O'Connell.

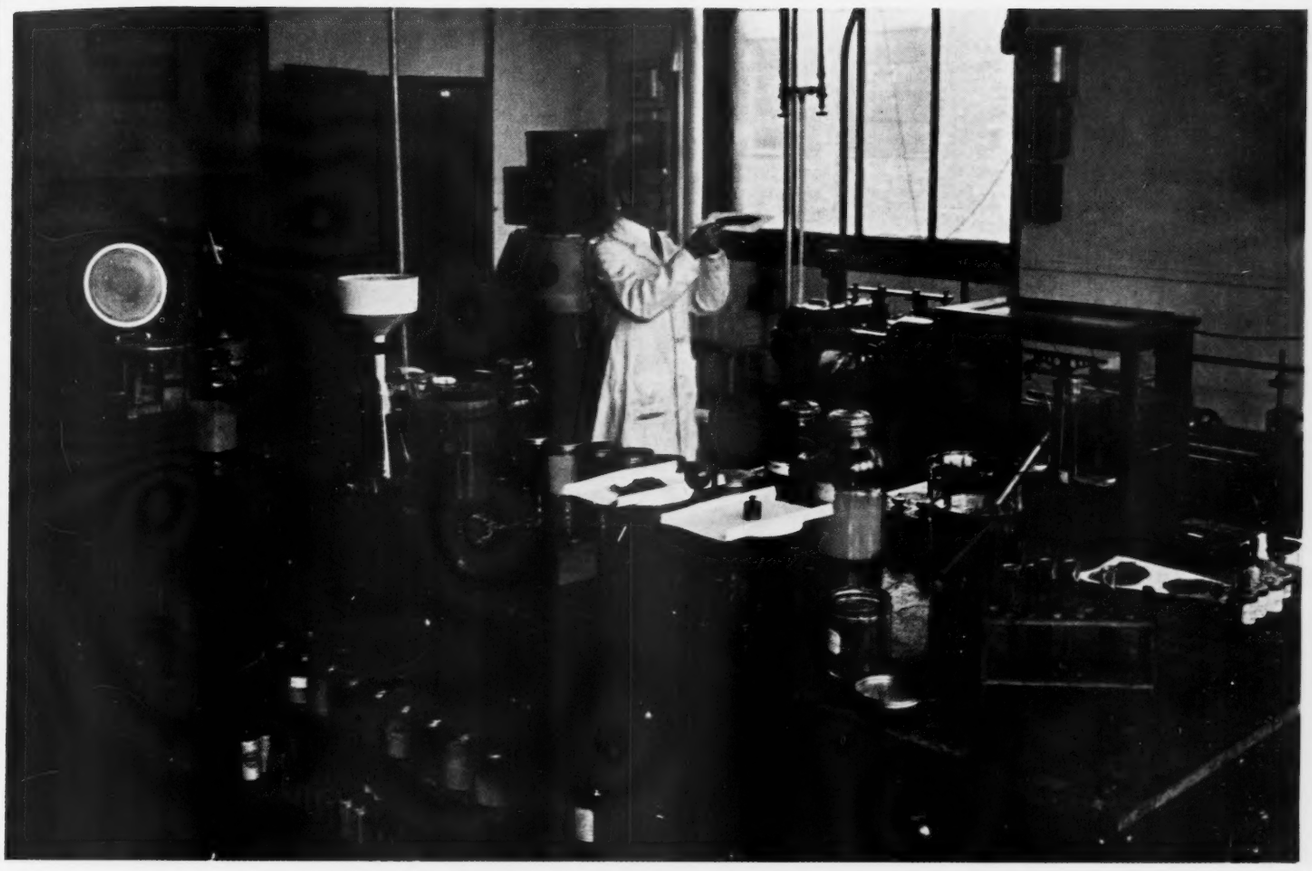
Conference Cancelled

The New York State Newspaper Mechanical Research Conference which was to have been held in Rochester, N. Y., February 23 and 24 has been cancelled because of a National emergency and to conserve every possible energy for Defense efforts.

SPECIAL EDITIONS

Port Huron (Mich.) Times-Herald

Besides publishing a 16 page regular edition on New Year's Day, the Port Huron (Mich.) *Times-Herald* printed a 28 page tabloid Victory Edition. Editorial matter in the edition was devoted to telling its readers what they can do to help win the war and what is being done in the Port Huron neighborhood by manufacturers to facilitate Uncle Sam's problem in furnishing war equipment. Composition, makeup and presswork for the edition are excellent.



The Doctor Is Here—

TO GIVE YOU

NEW INK STANDARDS

The doctor in this instance is one of that devoted band of chemists who in laboratories everywhere is helping to develop an industrial era from which many of the problems of life will be banished. Specifically the one to whom we refer is a research chemist in the Ink Industry who already has revolutionized costs, quality and printing speed—but who says, "Why, we've only started."

(Continued on following page)

★ ★ ★

The Doctor Is Here—

(CONTINUED)

★ ★ Due to his accomplishments fifty million dollars have been invested during a few years in new presses and equipment, and more printing is being produced than ever before in the form of periodicals, food wrappers, mailing pieces, labels, and advertising in general. Out of his crucible and test tube have come color, gloss, cleaner and sharper impressions to meet a public demand.

The Levey Company takes pride in its ink doctors. From their laboratories have come noteworthy contributions to the art of high speed letterpress printing, to brilliant and high-gloss inks, to improvements in the field of gravure, lithographic, label, bag and carton inks.

Although a staff of chemists and chemical engineers constantly seek for ways and means of producing better ink, the cost of this service to our customers is less than a cent per pound of ink. Thousands of dollars are invested in laboratory facilities and apparatus but the really important investment is in brains – in ink doctors capable of translating the laboratory achievement to commercial production.

The colored photographs on the preceding page only in a small measure typify what is going on night and day in the Levey ink laboratory to improve the beauty and appeal of the printed page, and to help merchandise billions of dollars worth of factory products through brighter, more colorful labels and packages.

The Fred'k H. Levey Company, Inc., assures its customers everywhere that the search for better printing inks at lowest possible cost will continue and that your problems are its problems.

FRED'K H. **LEVEY** CO., INC.

Makers of Fine Printing Inks Since 1874

PHILADELPHIA · NEW YORK · CHICAGO

Brooklyn · Cincinnati · Monmouth Junction, N. J.
Springfield, O. · Dayton · San Francisco · Chattanooga

Stitching and Bookbinders' Wire Makers Get A-8 Rating Under P-101 Preference Rating Order

Rating Order A-8 Under Preference Rating Order P-100 was issued on January 27 by the War Production Board for delivery of materials for the manufacture of stitching and bookbinders' wire for the printing and publishing industry.

The Rating Order A-8 applies only to round or flat steel wire used in binding operations employed in the printing, publishing and related service industries.

Producers are entitled to apply the rating to obtain delivery of the stock from which to make stitching wire. The rating can only be applied for materials authorized on Form PD-82. The War Production Board will determine these requirements on a quarterly basis. It is expected that for the first quarter of 1942 a reduction of from 10% to 12% from normal current usage of steel will be required.

Restrictions on the use of steel in succeeding quarters may be greater because of increasing military demands. The War Production Board urges every Graphic Arts establishment using stitching wire to study its consumption and make every effort to conserve the supply, reduce waste and eliminate nonessential uses.

Paper Programs Sent to Manufacturers

ON January 30, Chief Norbert A. McKenna of the Pulp and Paper Branch of WPB sent out proposed programs for the simplification, standardization and reduction in basis weight of coarse papers and printing paper. Copies of the programs were sent to all known manufacturers of the many kinds of papers used in the printing and allied industries.

The programs were sent to manufacturers because of the anticipated shortage in the pulp and paper supply of this country during 1942. The shortages are due to the curtailment of pulp imports, lend-lease needs and greatly increased demands for the armed forces, as well as existent civilian requirements.

Proposed specifications include, reduction in paper grades, paper sizes and weights.

The programs are being presented to the paper trade for acceptance on a voluntary cooperation basis until the termination of the present war.

Proposed programs cover the following: Book papers for commercial advertising and printing; Fine papers for the commercial advertising and printing field and of blueprint and direct line papers; Butchers' papers; Grocery bags and sacks; Wrapping tissues and Kraft wrapping paper.

EMPLOYMENT
AND SERVICE

Employers, production and mechanical executives may insert notices in this department. Items may pertain to the following subjects: "Executive Wanted," "Association or Partnership Wanted," or "Position Wanted," readers referring to subjects of a personal nature such as obtaining information about addresses of executives, supplying copies of technical articles and magazines, patents for sale or requests for contacts for developing and/or financing of inventions.

Any reasonable request from an employer or mechanical executive for the printing of a notice upon a subject other than the ones listed above will be granted.

Notices may be printed under the following regulations: First insertion (maximum six lines) is free of charge. All subsequent insertions of the same item subject to a charge of 75c per line in advance.

Address all communications with box number to *Printing Equipment Engineer*, 1276 West Third St., Cleveland, O.

WANTED — Foremanship of daily paper. Out of employment because of merger. Experienced; capable; works harmoniously with force and all departments; can get good production; best of references. Reply Box 145.

POSITION WANTED — By experienced composing machine machinist. Familiar with line and typecasting machines. Capable of taking charge any size battery, including Linotypes, Intertypes, Monotypes and Ludlow. Married. Reply Box 142.

Chromium Now Under Complete Allocations

ON Wednesday, February 4, chromium was placed under a complete allocations system by the Director of Industry Operations by an amendment to Order M-18-a. The amended order provides that no chromium may be melted except with specific authorization of the Director of Industry Operations. It is designed to prevent depletion of existing stocks and to control further the flow of the metal. Order M-18 is revoked. The new order expires June 30, 1942.

Discontinues Use of Yellow Inks

The Champion Paper and Fibre Company announces that for the duration of the war the company will discontinue the use of yellow ink in all of its printing, except in four-color process.

Champion believes that other colors can be utilized just as effectively. In this way, large quantities of chromium and lead will be saved for essential war use, and for making yellow inks for more important commercial printing, such as packages and labels where this color is an important item in indentification.

Miller Plan for Conservation of Repair Parts

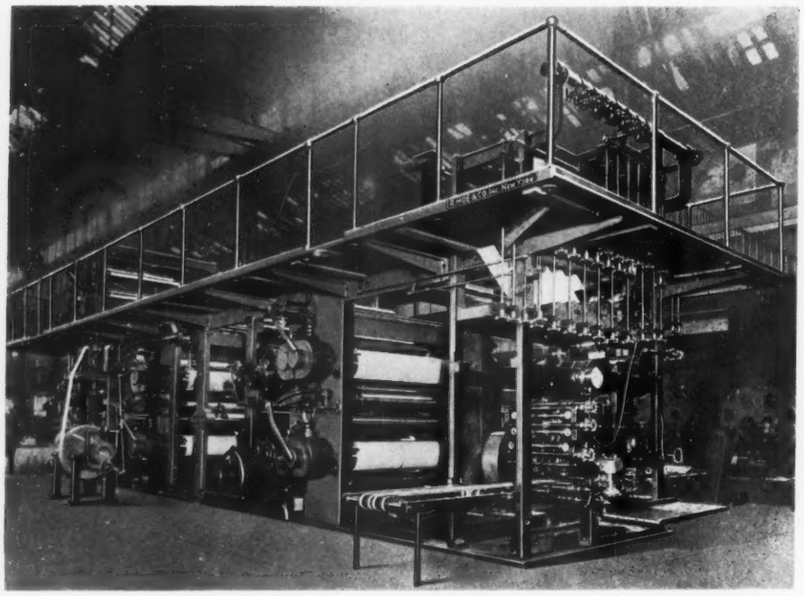
IN January, the Miller Printing Machinery Co. sent a letter to all users of Miller equipment requesting that the old part be returned in exchange for the new replacement part being ordered. This action by the Miller Printing Machinery Co. is an effort to assure a continued supply of repair parts for fair distribution to those actually needing them.

There is no shortage of repair parts now nor is it expected immediately. Previously the situation was ominous because certain parts made of materials known to be scarce were being ordered in advance and in needlessly large quantities. Thus, a printer in the West was ordering an excessive number of parts that a printer in the East needed, and vice versa. The printer who waited to order parts until he actually needed them might have then been unable to obtain the parts he needed. In fact, parts shipments for the last quarter of 1941 were noticed to have been almost four times that of any similar previous period of time.

In England, it is stated in the announcement, a printer is now legally required to have governmental approval on a parts order form in order to procure press parts for repair. This regulation, admittedly a nuisance, nevertheless eliminates parts hoarding and assures a fair distribution of parts from depleted supplies. Anticipating a shortage of materials in this country as certain materials become scarcer with the progress of the war, the Miller Printing Machinery Co. has endeavored to try to prevent the necessity of such stringent measures here.

This Company's plan of simply asking the exchange of an old part for a new one, gives assurance that the repair part is actually needed, protects all printers alike and will provide a complete range of repair parts as may be had from available materials over the longest possible time in the future. Such a program entails some additional work for both the printer and the Miller Printing Machinery Co., but the manufacturer, in this case, gladly assumes the greater amount of expense and effort involved because of the benefit resulting to all those concerned.

Obviously, state executives of the company, there is no value in the parts returned as they will consist largely of non-salvagable rubber, fabric gears and other such useless materials. No increase in parts prices is contemplated over those which have prevailed during the past eight or ten years despite recent substantial rise in costs.



View taken at folder end of the new Hoe Super-Production Magazine Printing Press installed in plant of Christian Science Publishing Society, Boston. The press consists of four printing couples mounted two-high—two couples at the floor level and two superimposed. Two different size products may be printed on this press. To permit this, a specially designed folder, paper roll arrangement, plate cylinder lockup, lead and pulling rollers and the like were provided. Both size products can be delivered as complete books, including covers and inserts. A high-speed rotary wire stitcher mechanism is installed in the folder which operates without reduction in press speed.

New Magazine Rotary Press

NOW in operation in the Christian Science Publishing Society's beautiful plant in Boston is a new Hoe Super-Production Magazine Press. It is composed of four complete printing couples, a special folder mechanism and a number of features which provide flexibility in the products that can be run. The couples are positioned two-high, *i.e.*, two couples at the floor level and two superimposed. The press is arranged with the folder in front and the paper roll arrangement in the rear back of the printing couples.

With the new press it is possible to run two different size products, $5\frac{11}{16}$ in. by $7\frac{7}{8}$ in. and $4\frac{17}{64}$ in. by $6\frac{3}{8}$ in. To permit running these two sizes, a specially designed folder was necessary as well as special provisions such as paper roll arrangement, plate cylinder lockup, lead rollers, pulling rollers, and the like, because of the different paper roll widths and length of cut-off for each of the two sizes of products. Changes from one size to the other can be effected with minimum delay since both size products are run on a close operating schedule.

The printing cylinder diameter is the same for both sizes (although the plate sizes are different—6 pages circumferencewise for the $5\frac{11}{16}$ in. by $7\frac{7}{8}$ in. size, and 8 pages circumferencewise for the $4\frac{17}{64}$ in. by $6\frac{3}{8}$ in. size) and both size products are cut, folded and delivered through a single high-speed folder mechanism.

Both size products are delivered as complete books, including covers and inserts. A special paper roll stand at one end of the press was built to accommodate the roll of paper on which the covers are printed and provisions also were made to run this cover paper side by side with the text paper through the press simultaneously and to collate the covers with the text paper above the folder so both covers and text pages can be printed, assembled, cut, folded and delivered as a complete book. The inserts are handled in a similar manner excepting that the special stand for the insert paper rolls is mounted in a movable carriage that can be connected at an advantageous position in the center of the press at right angles to the printing couples. The insert roll stand is movable because inserts are not run in every edition.

Covers may be printed in color by the use of a double-ender arrangement whereby the cover paper after being printed in black on both sides, may be led back to one of the printing couples through which it has already passed, to obtain a second (color) printing.

A high speed rotary wire stitcher mechanism is installed in the folder. With this attachment, both size products are two-wire-stapled ready for final trimming without reduction in press speed.

Other modern improvements included in the press are anti-friction bearings throughout, solid steel printing cylinders, automatic force-feed lubrication system with oil tight guarding, electric apparatus for maintaining side-adjustment control of paper rolls from push buttons located at the folder, gear-driven paper feeding devices, air-blown angle bars, spiral bevel and helical spur gears, ink motions mounted in movable carriages. The press bed-plates, side frames, braces and rails, are of steel or cast-iron construction with ample strength and rigidity for the sustained maximum speeds for which the press was designed.

Executive Meeting Dates

American Photo-Engravers Association—Louis Flader, Commissioner, A-1446 W. Van Buren St., Chicago, Ill.

A.N.P.A. Mechanical Conference—June 8, 9, 10, 1942—Hotel Drake, Chicago. W. E. Wines, Manager, A.N.P.A. Mechanical Dept., 370 Lexington Ave., New York, New York.

Illinois Mechanical Conference—Ed Nagel, Secretary, Champaign (Ill.) *News-Gazette*.

International Association of Electrotypers & Stereotypers, Inc.—A. P. Schloegel, Field Secy.-Treas., 949 Leader Bldg., Cleveland, O.

International Association of Printing House Craftsmen—August 9-12, 1942, Grand Rapids, Mich. Herbert Threlfall, International Secretary, 210 Lowell Ave., Providence, R. I.

International Trade Composition Association—Wm. E. Lickfield, Secretary, 629 Chestnut St., Philadelphia, Pa.

Iowa Daily Newspaper Mechanical Conference—May 24, 25, 26, 1942, Hotel Fort Des Moines, Des Moines, Iowa. Paul Kamler, Secretary, Clinton (Ia.) *Herald*.

Iowa Line-casting Machinists Conference—May 24, 25, 26, 1942, Hotel Fort Des Moines, in conjunction with Iowa Daily Newspaper Mechanical Conference. Carl Bloomburg, Chairman, c/o *Register* and *Tribune*, Des Moines, Ia.

Minnesota Association of Line-Casting Machinists—Feb. 14-15, 1942—Hotel St. Paul, St. Paul, Minn. H. E. Magnus, Secy.-Treas., 4816 York Ave., So., Minneapolis, Minn.

National Association of Photo-Lithographers—Walter E. Soderstrom, Executive Secretary, 1776 Broadway, New York, N. Y.

New England Newspaper Mechanical Conference—Second week-end, October 1942—Hotel Statler, Boston. Walter C. Crighton, Secretary, New London (Conn.) *Day*.

Northwest Mechanical Conference—Feb. 14-15, 1942—Hotel St. Paul, St. Paul, Minn.

New York State Newspaper Mechanical Research Conference—February 23-24, 1942, Rochester, N. Y Byron G. Culver, General Chairman, c/o Rochester Athenaeum and Mechanics Institute, Rochester, N. Y.

S.N.P.A. Eastern Div. Mechanical Conference—August 31, September 1-2, 1942, New Orleans, La. Walter C. Johnson, Secy.-Mgr., P. O. Box 1071, Chattanooga, Tenn.

S.N.P.A. Western Div. Mechanical Conference—February, 1942 meeting postponed indefinitely. C. W. Tabb, Secretary, 723 Texas Bank Bldg., Dallas, Tex.

United Typothetae of America—Donald Rein, Executive Vice President, 719 Fifteenth St., N. W., Washington, D. C.

Bulletins Well Received

One of the means employed by the International Association of Printing House Craftsmen to make the association of utmost educational value to its members is the monthly digest of significant technical articles appearing in the current printing trade press. The digest is entitled *Educational-Research Bulletin*. Each issue is mailed to individual club officials throughout the United States by the Educational Commission of which Douglas C. McMurtrie is chairman. The material is prepared under the chairmanship of R. Randolph Karch of the Research Commission.

Eight articles published in *Printing Equipment Engineer* were found of such significance as to justify being abstracted in five issues of the *Bulletin*.

"Unfinished Business"

Continued interest in equipment in use has always been the Linotype tradition and policy.

Now, with restrictions on materials and supplies, Linotype's interest is redoubled. The efficiency of present equipment must be preserved.

Your Linotype representative is ready, as always, to assist you with any composing-room problem. Behind him are research laboratories, skilled engineers and a printing-wise staff to help him help you. Don't hesitate to draft his assistance.

Linotype and A-P-L Granjon

EXECUTIVE ¶s

Mechanical executive friends of Superintendent A. T. Blease of the Corpus Christi (Tex.) *Caller-Times* will be pained to learn that Mrs. Blease passed away recently while on a trip with Mr. Blease through Austin, Texas.

Strawberry Hill Press, Inc., New York, announces the appointment of Floyd A. Hilsinger as Plant Superintendent. Mr. Hilsinger was formerly Superintendent of the Art Color Printing Co. of Dunellen, New Jersey and had previously been Superintendent of the printing department of Pictorial Review. He is retiring president of the Graphic Arts Square Club of Greater New York. The election of John A. Brannigan as Vice President is also announced. Mr. Brannigan has been engaged for 25 years in printing sales work in the metropolitan area and recently joined Strawberry Hill.

The election of William Barton Marsh as vice president of William E. Rudge's Sons, New York, is announced by Frederick G. Rudge, president of the company. Mr. Marsh, a former vice president of the Grace National Bank of New York, has become closely identified with the Graphic Arts through his work during the past several years as public relations counsel for American Type Founders, Inc., the Graphic Arts Sales Research Associates and other clients. Mr. Marsh will assume charge of the Rudge sales organization where his knowledge of public relations problems will be of value in formulating the graphic interpretation of public relations messages in which the firm of Rudge specializes.

For the seventh annual Ladies' Night and Installation of Officers program, a clever program was prepared for the Indianapolis Club of Printing House Craftsmen. The event was held at the Columbia Club on January 17. The program measured 5⅜ in. wide by 7 in. high. In addition to the French fold, the Strathmore Fiesta-type stock (white stock with blue border) was cut at an angle from the original sheet (square shape with one edge at approx. 30 deg. angle) so that when folded the blue edges of the stock form a "V" pattern extending from top to bottom of the folder. The typography, printed in maroon, was beautifully executed.

A. L. Freedlander, President and General Manager of The Dayton Rubber Manufacturing Company, Dayton, Ohio, was appointed Deputy to the Chief of the Rubber and Rubber Products Division of the Office of Production Management

President A. L. Freedlander of Dayton Rubber Mfg. Co., now is deputy to the chief of Rubber Division.

on December 26th. He has been in the rubber industry for 28 years. Leaving the development division of one of the large Akron companies 22 years ago, he joined Dayton Rubber in the capacity of factory manager. Several years later he was made vice president, and became president and general manager in 1936. Mr. Freedlander is credited with a number of developments in rubber chemistry, engineering and manufacture. He served the Government during the first World War.

George Wise, jr., who has been superintendent of the Curry-Thompson Company in Pittsburgh, is now plant superintendent of the Stevenson-Foster Company at 7th Ave. and William Penn Way, Pittsburgh. Mr. Wise is an ex-president of the Pittsburgh Craftsmen's Club.

H. W. Henry was elected President of the Graham Paper Company, St. Louis, at its annual meeting January 28, succeeding C. W. Lewis, who retired after 47 years with the Company. Mr. Henry, is 48 years of age and during the past six years has been Treasurer and a Director of the Company. Other officers elected were: E. G. Kerwin, Executive Vice President; P. A. Harris, Vice President; D. French, Vice President, and W. H. Kniep, Secretary-Treasurer.

Recommended Illumination Levels for Printing Industry

THE illumination table printed here for the printing industry is the result of recent findings and observations by the Westinghouse Lamp Division, Bloomfield, N. J. It is based on the scientific fact that existing foot-candle levels should be at least doubled if measurable and significant improvements in seeing are to result. In addition, the new recommendations give full weight to the improvements in old light sources, the high efficiencies of the new, and the ever downward trend of lighting costs as a result of all these improvements. The values shown should be provided on the work regardless of whether in a horizontal, vertical or oblique plane.

Activity	*Foot-Candles*
Type Foundries—	
Matrix Making, Dressing Type	100
Font Assembly—Sorting	50
Hand Casting	30
Machine Casting	20
Photography—	
Dry Plate and Film	2000
Wet Plate	3000
Printing on Metal	2000
Photo Engraving—	
Etching, Staging	20
Blocking	30
Proofing	50
Tint Laying, Routing, Finishing	100
Electrotyping—	
Molding, Routing, Finishing, Leveling Molds	100
Trimming	50
Blocking, Tinning	30
Electroplating, Washing, Backing	20

Editor's Note — The lighting level determinations as recommended by Westinghouse engineers do not differ greatly from those of the Illuminating Engineering Society published in *Printing Equipment Engineer's* 1941 Printing Equipment and Supplies Catalog, see pp. 102-103. The recommendations of the latter, however, are projected as *minimum* operating foot-candles.

The Illuminating Engineering Society's recommendations for printing plants, and which are not included in the Westinghouse recommendations, are as follows:

Printing Plants:	Foot-candles
Presses	30-50[1]
Imposing Stones	100[1]
Proof Reading	100[1]

[1]In many cases, where illumination of more than 40 foot-candles is necessary, it should be obtained by a combination of general lighting plus supplementary lighting at the point of work. The superior figure[1] denotes that composite type of illumination is desirable.

IT'S VITALLY IMPORTANT

TO KEEP PRINTING METALS WITHIN THE PRINTING INDUSTRY

AS a part of the printing industry, you have an important duty to perform. You must do your share to keep all printing metals within this industry. The amount of new lead, tin, antimony, zinc, and copper that the printing industry will be permitted to purchase in 1942 has been *drastically cut*. This means that we must rely on scrap metals, such as dross, dead electros and stereos, zinc etchings, etc., in order that you may continue to be supplied with printing metals.

Make a survey of all dead or scrap printing metals in your plant. Send this material to us for re-processing and re-using. SEND IT NOW. These metals received by us can be exchanged for an equal weight of other printing metal, plus a processing charge or toll, without applying your A-10 preference rating. Note carefully — We can exchange an equal weight of other printing metal for any kind of scrap or dead metal on a processing charge or toll basis.

If you have no scrap or dead metal, but need additional type metals, they can be purchased providing your order or letter carries an officially-signed statement of preference rating.

Keep every pound of printing metals in the industry. Gather together and ship to us all dross, dead or obsolete metals, electros, stereos, zinc etchings. Send it in now on a toll exchange basis and get new metals, cash, or credit. Don't wait. Tomorrow may be too late. Protect your industry during this grave shortage of printing metals. You can be sure that dead metals and dross shipped to us will stay within the industry.

IMPERIAL TYPE METAL COMPANY

SERVING THE PRINTING INDUSTRY ONLY

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The Printing Metals Situation

ALL the metals listed below that are used in the printing industry are subject to strict Government control. It is reported they are so difficult to obtain for the printing industry that resultant shortages will make it necessary for printers and publishers to get along with less of these materials or their alloys. For example, Tin Order M43a issued by the War Production Board, limits the consumption of tin in the printing industry for the first quarter of 1942 to 50% of the amount used in the corresponding quarter of 1940.

All manufacturers are now requiring on every printer's purchase order the endorsement or certification mentioned in Preference Rating Order P-100 authorizing the use of the A-10 Rating.

Many foresighted manufacturers, especially those engaged in the manufacture of type metals and photo-engraving zinc and copper sheets, are now in the midst of a nation-wide campaign to persuade everyone possessing scrap printers' metals to turn them back to the industry. Prevailing market prices are being offered for every kind of scrap material. Manufacturers claim that not enough primary metals are available to meet ordinary demands of the printing industry. Their plea is an urgent one.

Aluminum: Under mandatory control.

Antimony: All of it now goes into Government pool for allocation.

Copper: Claim is made that not enough is yet available to meet U. S. military demands and Lend-Lease commitments.

Lead: Printing industry cut to 90% of 1940 consumption. OPA is offering a bonus price for extra production, which should help considerably.

Nickel: Canada is the only source. It is now up to maximum production. For printer needs consult your last supplier for procedure.

Zinc: Government pool now requiring 40% of all February production. Here, too, a bonus price is being offered for increased production over 1941 to alleviate shortage of this critical war metal.

Tin: All tin mines, except Bolivia, now either in Jap hands or menaced by them. This situation is most serious and as a result type metal manufacturers must get along with 50% less primary pig tin than they required in 1940. This percentage may be reduced still further for the second quarter of 1942.

Nonferrous Metals—Smelter Quotations—Feb. 2, 1942

(100 lb. Lots)

	Dec. 27	*Feb. 2*
Aluminum (94%) minimum, del	$13.50	$13.50
Antimony (Am. spot, case lots, N. Y.)	14.00	14.00
*Copper (Electrolytic, Conn. Valley, deld.)	12.00	12.00
Lead (E. St. Louis pig)	5.70	6.35
Nickel (99% anodes) 500 to 2999 lb. lots	47.00	47.00
*Tin (Straits, spot)	52.00	52.00
*Zinc (prime West., spot, E. St. Louis)	8.25	8.25

*Trading suspended.

These quotations furnsihed by *Daily Metal Trade*, Cleveland.

Moves to New York

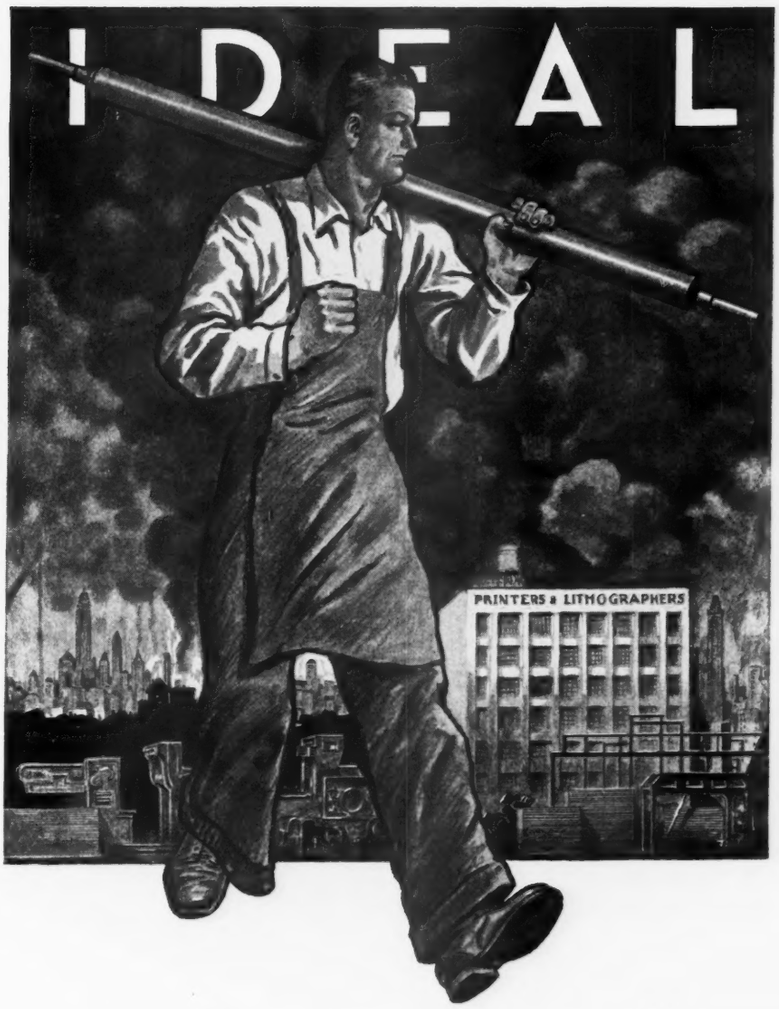
The Printing Materials Division of Bakelite Corporation, Unit of Union Carbide and Carbon Corporation is now located at 300 Madison Avenue, New York, N. Y. In addition to sales engineering offices, a small laboratory has been completed for development work on Bakelite printing materials, including the plastic printing plate products, which have been developed to replace electrotypes and stereotypes. Eugene Williamson is in charge of the division.

Matrix Contrast Corporation Holds Party — Executives and service personnel of Matrix Contrast Corporation gathered shortly before Christmas in the Corporation's offices in the Empire State Building, New York, for the annual get-together. Excepting members of the London, England, service station, nearly all Matrix Contrast service men and most of their assistants were present. It was announced at the party that more newspapers and other printing establishments installed Black and White Matrix Contrast service in 1941 than in any other year since 1929. Executives and employees are identified in the accompanying illustration as follows:

Back row, left to right: Richard Gallagher, Charles Lipplegoos, Jr., William Jackson, and Ira B. Fowler, crew manager; Clarence Aldrich; Arthur D. McClary, crew manager; Henry W. Curlander, manager New York service station; and Richard S. Conmee, crew manager.

Middle row: Clifford J. Martz, manager Chicago service station; Joseph Mason, crew manager; John W. Clark, Kenneth McWirther, and Gerald W. Hunter, manager of service; Charles R. Hubbard, crew manager; Willis C. Hunter, crew manager; Carroll Richardson; and Clifford Yewdall, secretary-treasurer.

Front row: Lon. S. Landers, president; Olga Pawluk, Beatrice Ruddick, Viola Zierau, Peggy O'Sullivan, Rosalia Barbato, Catherine Brady, and Charles H. Stout, vice president.



Put your best foot forward!

The best will be none too good in 1942, when industry will need every help in economical production.

Your Ideal rollers will help you maintain production schedules at a minimum of cost and with the least amount of worry.

Each year developments have been made to modernize Ideal rollers, and our latest development—Synthox rollers—is the result of careful analysis of the problems which soon will confront printers everywhere.

These new soft rollers are designed to do an excellent printing job and yet to remain flexible and durable over a long period of time. The first cost is long forgotten by the time the rollers have worn out, and when the cost is divided over the years of service you will find that it has been much less than for rollers made with other types of materials.

Ideal's synthetic materials have been able to meet the severe and exacting specifications on airplane motor parts used by the foremost airplane motor manufacturers of the United States.

This proof of our compounding ability should reassure you that when it comes to our own particular field of making rollers, we can meet your most exacting demands.

IDEAL ROLLER & MANUFACTURING COMPANY

CHICAGO, ILLINOIS *Branch offices located in principal cities* LONG ISLAND CITY, N.Y.

Development of

Photographic Typesetting and Justifying Typewriters

By ALEX. G. HIGHTON*

*Consulting Typographer, Newark, N.J.

PHOTOGRAPHIC typesetting is already here, of course, in the Rutherford Photo Lettering Machine. But that machine, in itself, does not threaten the manufacturers of typesetting machines. What it is the forerunner of, however, does threaten them.

United States and foreign patents have been issued on many methods of photographing alphabetical characters into lines and pages—some of them seemingly practical, and others deserving little consideration.

That none of them has been financially successful, in spite of the fact that patents date back to the last century, indicates that (1) There is no need for such a machine, (2) The inventions are not practical, or (3) They would be too costly to manufacture.

Needed Badly

While the first of these possible reasons for the failure to develop such a machine ("There is no need for such a machine") may have held good forty or so years ago, it does not hold good now. Photo-offset and gravure (photographic processes) cry aloud for a method of typesetting which will parallel the plate-making method in speed and economy.

Would Effect Savings

The present method of composition is a drag on the photographic processes, for their advancement would be even more rapid if type could be set photographically, thereby eliminating (1) Investment in metal and type; (2) Melting and casting of metal type, and (3) Handling, makeup, lockup of metal composition. Instead of these elements, only the cutting and pasting of photographic prints would be required in photographic typesetting.

Obstacles in the Way

The second reason ("The inventions are not practical") holds good as to many of them, but not all. But, even if it could be proved to everyone's satisfaction that one of the inventions would be practical, it would still be difficult to secure capital for its development, unless it were demonstrably simple, efficient and economical to such a high degree that it would be improbable another method could be developed to compete successfully with it.

Related to Existing Machines

Among the methods invented and patented are some which secure better attention than others because they are based on known methods of typesetting, slug-casting (Linotype and Intertype) and single-character casting (Monotype). We can comprehend more readily a method which uses part of a method with which we are already familiar.

Whole-Line Assembly has Limitation

The method based on the principle of utilizing a whole line of line-composing matrices for one cast retain some of that method's limitations by trying to photograph a complete line as a unit. The difficulty here is in providing a lens which will not cause the letter characters in the line to be distorted from the center area towards either extremity of the lens. I understand, however, that engineers of Intertype Corporation have devised a method whereby a complete line of characters is assembled, but each character is photographed individually. Even here some of the limitations of a completely assembled line of matrices must be maintained.

Single-character Method

The utilization of the Monotype method, as proposed in United States patent issued to George Westover in January 1941, allows for greater flexibility of operation, and greater control over character arrangement and width. This method, however, is not practical in the form covered in the patent issued, because it requires an additional operation to assemble the lines into pages after the lines have been photographed end to end. I had an application for U. S. patent on file, based on the Monotype machine, which would complete the assembly of pages or galleys in one photographic operation, but Westover's prior application left me little to cover.

Basic Differences Call For New Design

It would seem probable that the manufacturers of composing machines would prefer to use methods based on their existing machines, provided they could control the methods. I feel, however, that existing composing machines will have little in common with the successful photographic typesetting machine, for the reason that the two processes (casting molten metal and photographing alphabetical characters) are so foreign to each other. True, the relationship of the alphabetical characters to each other in words and lines will be close in the two methods, but there will be a flexibility in the photographic method never dreamed of in the methods using molten metal—a flexibility which can save a number of pages in a book and which will permit of typographic tricks having utility as well as picturesqueness.

Molten Metal Versus Speed of Light

Present composing machines are limited in speed by the casting of molten metal. The photographing of characters on a sensitized surface can be performed much faster. True, the photographing of the character is not the factor which will determine speed, but rather the positioning of the master characters at the exposure point. While this must be a mechanical operation, it can be and will be much faster than casting metal type.

Movement of Sensitized Surface

There is another factor affecting speed —the moving of the sensitized surface into position to receive the images of the master characters as they are brought into position. If characters are photographed individually, the sensitized surface must move in a direction parallel to the length of the line an amount equal to the width of each character to be photographed. This means that the movement of the sensitized surface for this purpose must be controlled accurately. This movement (small steps in one direction) will probably consume less time than the positioning of the master characters, because of the complex nature of the movements required to bring such a large number of different characters to exposure position rapidly, each one independently of the others.

A Real Competitor

Photographic typesetting has a competitor in the justifying typewriter, the present development of which may be compared with the present development of photographic typesetting. A few years ago we learned that a justifying typewriter was about to make its debut, but it was withheld immediately following a premature announcement. At present, two typings of each line are required to obtain equi-distant line length on the justifying typewriter. The type faces available on the typewriters in which an assortment of faces is available show an appalling lack of familiarity with good type design. Justification on existing typewriters *is* possible, in its crude way. And photo-lettering is available in superb quality but at slow speed by means of the device mentioned in the opening paragraph of this article.

The problems to be overcome to put really good justified typewriting (in a variety of type faces) on the market are small compared with those facing the development of high speed, high quality photographic typesetting.

While typewriting may never reach a state of perfection which will enable it to completely replace typesetting for offset and gravure use, it can be made to do such a good job that a large part of typesetting now being done by machine for those processes can be handled by it.

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STEEL ENGRAVING

PART II

Transfer Press is used in Offset-Lith and Steel Printing

By ADAM HENRI REISER

THE first article on steel engraving developed the early production steps in the Art. Sketches, models, tracings, etching, hand and machine engraving were all named as part of the steel engraving picture. In the production scheme there are other factors essential to the creation of the image from which the actual printing takes place.

Steel printing takes place from flat bedplates as a rule. There is however,

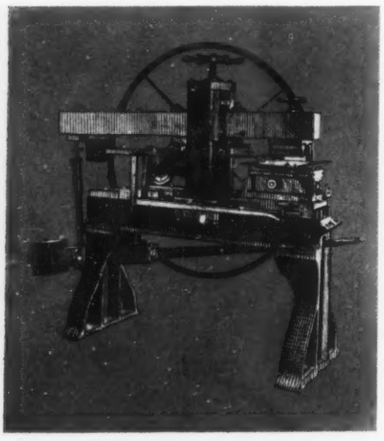

Fig. 2—Photo-engraved reproduction of Steel Engraving of transfer press for transferring hardened steel male designs to soft (not yet hardened) steel plates. A hand lever with counterbalance, or the large wheel at the rear may be rotated by hand to roll the table containing the soft steel plate back and forth under the hardened roll containing the design

another form of plate, curved to fit a cylinder used in rotary steel printing. Engraving for this plate work is handled differently, the design being cut in deeper, for in bending the plate to conform with the cylinder, there is a tendency to distort or stretch the image.

During the progress of the cutting of the design, while the die is still soft, proofs are pulled. Should there be any errors, alterations are then made on the soft die. Alterations may be made by burnishing; hammering out from the back after the incorrect portions have been gouged from the surface; or, a plug may be inserted in a hole drilled into the back of the plate and punched in till the face fills up. Alterations can also be made with acid. If the die has been hardened before the error is exposed, the die must first be annealed. Dots and unwanted areas of work are removed with engraver's stone and burnished over with a scraper. The surface is then stoned and the plate polished with oil.

Die Must Be Hardened Before Transferring Image

After approval of the proof impression, the carbon is restored in the die by treatment with a potassium cyanide hardening bath. The cyanide is brought to a cherry red, and the metal is thoroughly cleaned and immersed in the cyanide. Following the correct heat application, the die is immersed in sperm oil or brine and then plunged into cold water. It is then treated for hardness and tempered by reheating to the proper temperature. Following this it is cooled as before. It is then polished and ready for use as a mold.

Many uses are made of these dies. Each engraved die carries a sectional part of the whole design and is used as a mold to form its part on the transfer roll. By means of the latter, the final design is secured in the printing plate. These transfer rolls when finished carry the design in reverse relief, just as did the shell described in the geometric lathe paragraph. The relief design on the transfer roll is created by pressing the soft steel into the hardened steel mold of the die, while the die on the table of the transfer press is being rolled back and forth under the roll with increasing pressure. To prevent any shift in this operation, the transfer roll is driven onto a mandrel and locked securely into position. The siderographer, as the operator of the transfer press is known, rocks the plate table back and forth under the roll until the bottom of each line has been transferred.

Grand-daddy of Step-and-Repeat Machine

This transfer press is an interesting machine of this reproductive process. Fig. 2 is a photo-engraved reproduction of a steel engraved cut of the transfer press. The bed of the machine or table at the right of the illustration holds the die and the transfer roll. A small hand knob just below the table top permits tilting the table to favor pressure on either side of the roll. The foot pedal on the beam with the counterweight is used to apply pressure during the transferring operation. A hand lever with counter balance, or the large wheel in the rear of the machine is used to roll the table back and forth under the roll. The plate or die is lined up for position and fastened for each transfer. The steel transferrer or siderographer as he is known, makes the layout on the soft steel, indicating by lines or dots, the rocking-in position of the portion of the design he is transferring. When replicas are made from a transfer roll, the plate is moved leaving the roll in one position. This transfer press is probably the first step-and-repeat machine used in the graphic arts, (the grand-daddy of our offset-lith Photo - composing machine). Transfer rolls may be made from engraved dies on the transfer press or the finished roll may be used to produce the finished die or plate.

When a roll is made in the press, hardening follows completion of the transfer. Then tempering takes place just as was the case in the finishing of the die. The roll is then used to form the printing plate design directly, or it may be used to piece together a completed subject on another small die. From this last die another roll is made for duplicating or producing press plates, should the subject be in multiple form on the final plate. Transfer rolls may be used for thousands of impressions. Therefore, they must be structurally sound.

Soft metal is always used to receive a design regardless of the method employed to create the design. Duplicating designs so that each is an exact replica of the original engraving requires much skill and ingenuity. Some use the ruling machine to obtain the layout on the soft metal, assuring perfect alignment of the parts. To assure an even image where the plate is uneven in thickness or is warped, paper is laid under the plate to pack it up until the design is perfect. The depth of the design must be correct to get a perfect print from the plate. A definite means of correctly positioning the plate is provided in the transfer press, for the design must at times be re-entered after proving has uncovered any

(*Continued on Page 46*)

Office Appliance Work

QUITE a number of private plants break in some one from the office force to operate small offset presses of the office appliance type. Some budding artist is paid to do the art work, again perhaps a member of the office force. The type matter is set by a commercial printer who pulls first-class reproduction proofs to be patched in the art work for an all-together shot by the camera. Through such collaboration the work or image finally reaches the press plate. Many such jobs are far from satisfactory, two glaring faults that are very common being lack of register and failure to hold uniform color throughout the two or more runs in colored ink. Very often a careful search fails to find a single copy which might truthfully be pronounced good.

Does the job go into the paper baler? Under the current practice it is used, either in the plant or direct mail advertising, with the remark that it is not as good as it should be, as planned, but not so bad that it must be thrown away.

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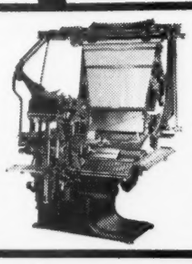

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We invite you to send for your copy of our new Linograph "50" Typesetting Machine Catalog.

LINOGRAPH CO. DAVENPORT IOWA

LETTERS
TO THE EDITOR

Replies to Ogden

Dear Editor:

I regret that I have not had opportunity earlier to reply to Walter Ogden's* strictures in your issue of July, 1941, on my brief reference to newspaper presswork in my talk on the physical appearance of papers to the publishers attending a meeting of the Inland Daily Press Association.

First let me say that I think the exceptions he took to my statements were well founded, particularly from the viewpoint of intelligent and interested pressroom executives like himself. I, of course, understand that getting good presswork is far from a simple matter, just as producing good typography is far from a "cinch."

My effort was to direct the attention of publishers to the importance of good presswork as a feature vital to the most successful newspaper publishing. I think there is all too little recognition on the part of publishers of this importance.

To the one newspaper which has made a serious effort, starting from the top down, to obtain a really well printed paper, there are fifty which pay little or no attention to this feature, and I believe Mr. Ogden would subscribe to this statement. A greater interest in presswork would "blow out" any conditions in engraving plant, composing room, or stereotyping department which required correction—or disclose the inadequacy of pressroom equipment.

The simple fact is that very few newspapers in this country are yet doing an outstanding job of presswork. The efforts being put forth by "this generation of forward-seeing newspaper mechanics" to which Mr. Ogden properly refers, is doing much to improve mechanical performance. But publishers have thought more of increased sizes of body types, typographic re-design, more pictures, etc., than they have thought about how these improved features are printed.

When a publisher comes back from a meeting stirred up about mechanical production, lays down a well-printed newspaper on the desk, calls in his mechanical men, and says, "We have got to get printing like that—now what have *we* got to do to attain that end?" there is opportunity to accomplish something.

My respects to Mr. Ogden. I really don't think he and I would disagree very actively on standards of craftsmanship in any branch of newspaper production.

Douglas C. McMurtrie
Ludlow Typograph Co.

*Editor's Note—Mr. Ogden is Pressroom Superintendent of the Cleveland *Press*.

Thinner Plates Acceptable

Cedar Rapids, Iowa
January 30, 1942

Dear Editor:

Our engraving department would be glad to get along on a thinner gauge copper. The suggestion in your January issue of spreading the allotment and using 18 gauge would sound to us like a thoroughly good one.

Herbert Stamats
French-Stamats Co.

Copper Conservation Suggestion

Dear Editor:

While there isn't anything new about the idea, it seems to me, if we are to have a copper scarcity during the war, that one of the ways in which copper could be conserved in the newspaper printing industry would be for national advertisers or those sending display space to regional areas where at least several insertions are involved, to make wider use of the direct pressure baked mat in lieu of electrotypes under certain conditions. This idea at least would help in preserving our present standards of newspaper printing. In the case of ordinary dry mats used for newspaper patterns by the advertiser, the difficulty in holding halftone screens when a flat cast must be made from the mat sent by an agency and subsequent mold from the reproduced flat-cast (two generations removed) in the stereotype foundry is well known. With color reproduction from these mats, register troubles also are well known.

Direct pressure baked advertising mats for whole page and fractional page stereotype plate-making purposes could be furnished by the agency but would be prepared and handled differently.

In the case of a full-page advertisement, it would be practicable for the advertiser to have the folio line of the paper to which the page mat is to be sent, molded right in the top of the mat. This would enable the stereotyper to place the mat in the casting box and cast a curved plate from it direct without loss of halftone detail. This procedure does not seem to be impractical inasmuch as the country's large syndicate houses already follow this practice with newspaper

(*Continued on Page 32*)

Printing Inks and National Defense

By HERBERT KAUFMAN*
*General Printing Ink Corporation, New York, N. Y.

MANY of us wonder what relationship there is between color—printing inks, pigments, dyestuffs—and national defense. Why is it that certain hues, reds, yellows, are being curtailed? What have colors to do with munitions and war materials?

To answer such questions in simple terms, here are a few notes gathered by the Color Research Laboratory of the Eagle Printing Ink Company. Yellows, for example—a great bulk of yellow printing inks are made from chromium ore. The best sources for such ore are in Turkey, Africa, the Philippines. Our own supplies are both limited and not always of best quality. Yet chromium is a vital war material, used in the making of armor plate and stainless steel. Naturally printing inks will be affected. And incidentally, next to black, yellow is one of the largest tonnage items in ink manufacture.

Reds are hit because of naphthalene, a coal tar derivative which is employed in the manufacture of practically every red pigment or dyestuff of any importance. Naphthalene is required in the process of manufacturing smokeless powder and for military coatings and marine paints.

Metallic pigments, made from aluminum, copper, brass, are scarce for obvious reasons. Titanium pigments, once imported chiefly from India and Norway, must now be developed from sources in this country.

Zinc, used to make white and certain organic colors, has largely been taken up by government priorities.

Perhaps the most vital of all war chemicals is nitric acid (and ammonia). This chemical is important in the manufacture of practically all organic pigments. Yet nitric acid also is essential for gunpowder and explosives of all sorts. Naturally the defense program will plan on increased production, but for the present nitric acid and ammonia are scarce.

Phthalic anhydride, used for synthetic varnishes, is now required in incredible amounts for smokeless powder.

Aniline, a coal tar product, and the basis of many colors, must be reserved in great volume for military dyestuffs, coatings and explosives.

Chlorine, an important component of many colors used by the printing ink manufacturer, is now needed to bleach cellulose for smokeless powder and to make high-test aviation gasoline.

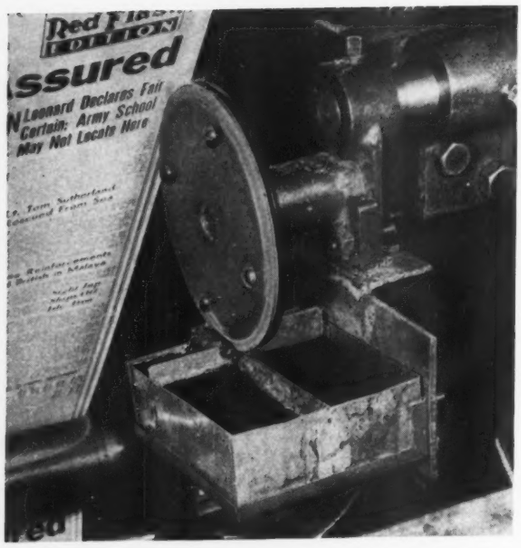
Formaldehyde, an essential ingredient of synthetic resin used in large quantities in printing inks, must now go into explosives and plastics and special coatings for military uses.

No matter what tools of war your plant is turning out, quantity *and* quality are needed Now. When these two are combined, Victory is assured.

This is the rule at SKF; and—despite production pressure—the peacetime reputation of SKF bearings is being amply sustained under the sterner demands of war.

SKF INDUSTRIES, INC., FRONT ST., & ERIE AVE., PHILA., PA.
5004

BALL BEARINGS **SKF** ROLLER BEARINGS



View of twin-disk newspaper first page striping device, devised by Mechanical Superintendent Vern Williams of the Springfield (Ill.) State Register. *Distinguishing feature of the device is the employment of two rubber disks and a divided ink fountain reservoir by means of which two stripes of different colors may be applied in one operation.*

Twin Wheel Device places red and blue stripes on right edge of front page of newspaper's Streak Edition

By VERN WILLIAMS*

*Mechanical Superintendent, *Illinois State Register*, Springfield, Ill.

NOT very long ago, the colored paper used in an edition of the *Illinois State Register* each publication day was discontinued. We now use the same kind of stock throughout, but the front page of this edition bears two stripes (red and blue) on the right side of the front page to distinguish it from other editions. The red and blue stripes are "printed" by means of the device shown in the accompanying illustration.

There is nothing new about the idea of striping the front page to designate certain editions, but one usually does not see an edition bearing two stripes of different colors.

The striping device discussed here is similar to the one illustrated and described by Superintendent Charles Mallm in the April 1941 issue of *Printing Equipment Engineer*.

The distinguishing feature of this striping device is the two-disk inking wheel and divided ink reservoir. Each disk is made from ⅛ in. thick rubber separated by a disk of the same thickness but of smaller diameter. The ink fountain reservoir divider is so constructed that it extends upwardly between the two rubber disks to prevent mixing of the two colors.

Inking of the right margin of the front page is accomplished through frictional contact of the two disks against the paper. The ink feeds by capillary action through felt pieces which contact the faces of the rubber disks. The fountain reservoir is hinged at the rear and the front is held by a coil spring so that pressure against the wheel is constant.

As is stated above, the marking disks are driven by friction through contact with the paper web. The disks are positioned between the former and nipping rollers, the paper being supported opposite the disks by a ball bearing wheel.

Regular aniline ruling ink powder such as is used by bookbinders is mixed with water to the right consistency.

Issues Approved Label

AFTER a year of cooperative efforts, Graphic Arts Spray Manufacturers, a group made up of eight manufacturers of spray materials, have issued an approval label which may be used on containers by group members whose products measure up to standards set for them by the group, working in collaboration with International Printing Pressmen and Assistants' Union of North America and New York Employing Printers Association, Inc.

The label testifies that the product of the group member using it "was analyzed by a reputable laboratory and in the opinion of competent medical authorities the ingredients found to be contained therein are considered as not harmful to health when used in non-offset spray devices."

The Union and the Association sponsored educational meetings to inform pressmen that spray devices should be used only when necessary to prevent offset after proper makeready and ink fountain adjustments have been made. While surplus dust from spray devices may not constitute a health hazard, it is a nuisance in some instances and should be minimized through use of non-offset spray devices only when they are essential for the elimination of offset.

Graphic Arts Spray Manufacturers consist of the following manufacturers of spray materials: Beach Nonpareil Compounds, Inc., Richmond Hill, N. Y.; Binks Mfg. Co., Inc., Chicago, Ill. (agent, American Type Founders Sales Corp.); Craig Corp., New York, N. Y.; Delany & Co., Inc., Philadelphia, Pa.; Nu-Method Sales Corporation, New York, N. Y.; Paisley Products, Inc., New York, N. Y.; Sprayomatic Products Co., Cincinnati, O. (agent, S. M. Weatherly); Triangle Ink & Color Co., Inc., Brooklyn, N. Y.

Clarence M. Coate, former president of American Printing Ink Company, Chicago, and former vice-president and director of General Printing Ink Corporation, died December 4 at Sarasota, Florida. He would have been 60 years of age on December 16.

Recent Linotype Matrix Faces

6 pt. Spartan Heavy with Italic

MODERN MAN CANNOT BE SERVED BY A TOOL
Linotype faces are designed by leading typog
MODERN MAN CANNOT BE SERVED BY A TOOL
Linotype faces are designed by leading typog

8½ pt. Memphis Light with Bold

MODERN MAN CANNOT BE SERVED
Linotype faces are designed by leadi
MODERN MAN CANNOT BE SERVED
Linotype faces are designed by leadi

12 pt. Spartan Black Condensed with Italic

MODERN MAN CANNOT BE SERV
Linotype faces are designed by l
MODERN MAN CANNOT BE SERV
Linotype faces are designed by l

18 pt. Spartan Medium Italic

MODERN MAN CA
Linotype faces are d

24 pt. Spartan Black Italic

MODERN MA
Linotype face

24 pt. Lino Text

MODERN MA
Linotype faces are d

36 pt. Metromedium No. 2 Italic

MODERN
Linotype fa

A WAR MESSAGE
to
ALL EMPLOYERS

★ From the United States Treasury Department ★

WINNING THIS WAR is going to take the mightiest effort America has ever made—in men, in materials, and in money! Every dollar, every dime that is not urgently needed for the civilian necessities of food, clothing, and shelter, must, if we are to secure final Victory, be put into the war effort.

An important part of the billions required to produce the planes, tanks, ships, and guns our Army and Navy need must come from the sale of Defense Bonds. Only by regular, week by week, pay-day by pay-day investment of the American people can this be done.

This is the American way to win. This is the way to preserve our democratic way of life.

Facing these facts, your Government needs, urgently, your cooperation with your employees in *immediately* enrolling them in a

PAY-ROLL SAVINGS PLAN

The Pay-Roll Savings Plan is simple and efficient. It provides, simply, for regular purchases by your employees of United States Defense Bonds through systematic—yet voluntary—pay-roll allotments. All you do is hold the total funds collected from these pay-roll allotments in a separate account and deliver a Defense Bond to the employee each time his allotments accumulate to an amount sufficient to purchase a Bond.

The Pay-Roll Savings Plan has the approval of the American Federation of Labor, the Congress for Industrial Organization, and the Railroad Brotherhoods. It is now in effect in several thousand companies varying in number of employees from 3 to over 10,000.

In sending the coupon below, you are under no obligation, other than your own interest in the future of your country, to install the Plan after you have given it your consideration. You will receive—1, a booklet describing how the Plan works; 2, samples of free literature furnished to companies installing the Plan; 3, a sample employee Pay-Roll Savings authorization card; and 4, the name of your State Defense Bond administrator who can supply experienced aid in setting up the Plan.

To get full facts, send the coupon below —today! Or write, Treasury Department, Section B, 709 Twelfth St., NW., Washington, D. C.

HOW THE PAY-ROLL SAVINGS PLAN HELPS YOUR COUNTRY

1. It provides immediate cash now to produce the finest, deadliest fighting equipment an Army and Navy ever needed to win.
2. It gives every American wage earner the opportunity for financial participation in National Defense.
3. By storing up wages, it will reduce the current demand for consumer goods while they are scarce, thus retarding inflation.
4. It reduces the percentage of Defense financing that must be placed with banks, thus putting our emergency financing on a sounder basis.
5. It builds a reserve buying power for the post-war purchase of civilian goods to keep our factories running after the war.
6. It helps your employees provide for their future.

MAIL THIS COUPON NOW

Treasury Department, Section B
709–12th St., NW.
Washington, D. C.

We want to do our part. Please rush full information regarding the Pay-Roll Savings Plan.

NAME .....

POSITION .....

COMPANY NAME .....

ADDRESS .....

NUMBER OF EMPLOYEES .....

MAKE EVERY PAY-DAY ... BOND DAY!

U. S. Defense BONDS ★ STAMPS

This space is a contribution to NATIONAL DEFENSE by (name of publication).

GPO 16—25943-1 Form No. DSS-BP-2

Copper Conservation

(Continued from Page 28)

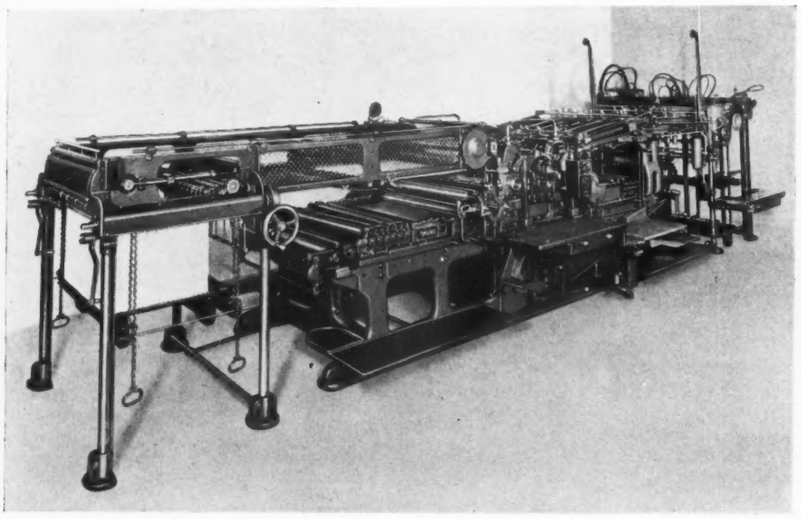
features. The additional cost, if any, should not be prohibitive.

In the case of a half-page or quarter-page stereotype direct pressure baked mat, the mat can be sent by the agency to the newspaper plant as usual. If the advertisement contains halftone areas, the direct pressure baked mat could be spliced into the mat representing the page upon which the advertisement is to appear, the composing room leaving a blank space in the form. Also, in this instance, the editorial department should OK the page for the day without make-overs. This system, however, would be practicable only for the hundreds of smaller newspapers. After a mat has been molded from this form, the stereotyper can trim out the blank space and then splice the half or quarter-page direct pressure baked mat in its place. Splicing is commonly practiced throughout the country and is not a particularly difficult operation. In this way, the fractional page advertisement can be cast direct from the mat furnished by the advertiser.

I am willing to admit that in some cases, the time element in the stereotype foundry might work against the time required to splice fractional-page mats, but don't believe this would be true anything like 100% of the time.

In the case of color advertisements, casting direct from the advertisers' original mat would eliminate 50% of the mat shrinkage which takes place where a color advertisement must be reproduced from a set of ordinary mats. In this way, newspaper printing would be improved considerably, but especially with reference to register of the color plates. If the ad mat is made properly and the caption is not inserted by the commercial plant, the stereotype department could splice in its own caption on the page mat.

George Fuller, Stereotype Supt.
The Cleveland *Press*.



View of Miehle 41 Two-Color Automatic Unit, one of the several cylinder presses having production stepped up by combining Dexter Stream Feeding, Miehle precision press construction and chain delivery.

"Big" Cylinder Press Improvement

As the result of an engineering development program, Miehle Printing Press & Mfg. Co. announces the company is now enabled to offer several of its "big" cylinder letterpress printing presses in improved construction to provide more sustained performance and as a result, greater hourly press production. These improvements consist of improved sheet control from feeder to delivery pile, precision press performance and Miehle chain delivery in each of the following press units: The Miehle 41 single and two-color; the Miehle 46 single and two-color, and the Miehle 56 single-color.

All of the press models named above are fitted with Dexter stream feeders. With this feeder, the sheets move off the pile in a steady, slow moving stream at approximately 1/6 the speed of the sheet by sheet feeder. Curled stock is flattened by the overlapped sheet ahead. Curled and thin stocks are easy to handle and register. The sheets do not bounce and cannot become nicked. There is less tendency for static to disrupt operation. Press speed can be stepped up. There are fewer sheet control mechanisms with which to "fuss," and fewer top holding rods.

Manufacturer states register is accurate, impressional strength and Miehle four-roller distribution system are adequate for "difficult" forms. Rollers need not be removed for washing. Drop-blade fountains and definite roller settings are provided.

It is also stated that the Miehle chain delivery provides positive control of the sheet from cylinder to delivery pile. The gripper bars travel on an endless chain at cylinder speed when taking the sheet from the cylinder, but slow down to approximately 3/4 speed as the sheets are released onto the delivery pile. Automatic pile delivery lowering is provided. Setting of the delivery grippers is not required to change from thick to thin paper. One adjustment of the jogger wings is required for a change of sheet size.

Sizes and rated speeds of the presses are as follows:

41 Single-Color—Maximum sheet size, 16 in. by 19 in. Speed range, 1600 to 3000 i.p.h.

41 Two-Color—Maximum sheet size, 27¼ in. by 41 in. Speed range, 1600 to 2800 i.p.h.

46 Single-Color—Maximum sheet size, 33¼ in. by 45½ in. Speed range, 1500 to 2000 i.p.h.

46 Two-Color—Maximum sheet size, 32 in. by 45½ in. Speed range, 1500 to 2500 i.p.h.

56 Single-Color—Maximum sheet size, 42 in. by 56 in. Speed range, 1350 to 2250 i.p.h.

Table Model Flat Scorcher

American Publishers Supply states its new stereotype flat scorcher is so constructed as to provide direct heat on the heating platen. The top cover is self-conforming and is supplied with ventilating slots to permit moisture from the mat to escape. The temperature is controlled by an indicating thermostat. Manufacturer states this scorcher to heat evenly over its entire active heating surface. The platen is designed for full page mat work with ample space around the mat margins.

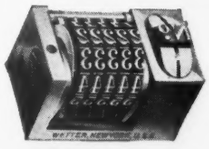
There is no electrical wiring in the machine as the heating elements are buss-barred and the unit terminals are so arranged that they are wired outside the machine.

View of American Publishers Supply Table Model Stereotype Mat Flat Scorcher. Can be supplied with pre-warming box underneath.

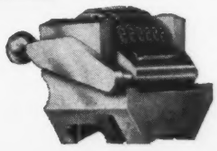
The accompanying illustration shows a single shelf underneath the heating top. These machines, however, may be supplied with a pre-warming box under the top where the mats may be kept for recasting. If the mat has been cast and three or four additional casts from it are

The Kid Boos Babylon, Boosts *Numbering for Profit*

- "Got a new one to show you, Pop. That's the badge of slave No. 1000 owned by the king of Ancient Babylon."
  - ★ "What a way to number anything!"
- "Sure! Howdja like to buy a typographic numbering machine that made smudges like that?"
  - ★ "They didn't have non-tilting plungers then."
- "Nor did anybody else till Wetter made 'em."
  - ★ "Remember why the plunger in a Wetter Numbering machine can't smudge?"
- "Pop, I've learned that one."
  - ★ "Spill it."
- "The plunger in a Wetter Numbering Machine works up and down in a jointless cylinder which supports it on all sides, like the piston in an engine. It can't wobble, so it can't tilt and therefore will not smudge."
  - ★ "Head of the class!"
- "Sure Wetter's head of its class."
  - ★ "So what?"
- "We number better with a Wetter."



Wetter Lock-Wheel
One of many models



Wetter Rotary
One of many models

WETTER NUMBERING MACHINE CO.
ATLANTIC AVE. & LOGAN ST., BROOKLYN, N. Y.
Sold by all dealers and branches
AMERICAN TYPE FOUNDERS

S-2171

*QUOTATION . . .

"Someone wanted to know whether larger wattage elements were procurable for display machines using a larger amount of metal. . . . The cold metal feeders were not able to keep up with the parade."

*(From a report on the 1941 Illinois News. Mech. Conference, printed in Printing Equipment Engineer, October 1941 issue.)

WE SAY . . .

"Here is one cold metal feeder which does keep up with the parade."

THE STAR SELF ACTUATING AUTOMATIC METAL FEEDER

was designed to feed cold metal at a rate in direct proportion to the withdrawal of molten metal from the pot. This means feeding metal in smaller amounts as often as required. One large slug will cause the Star feeder to go into action.

Several hundred of these feeders are meeting the severest tests on:

Linotype, Intertype, Ludlow, Elrod, and Monotype Machines.

TO ANY RESPONSIBLE CONCERN WHICH WOULD LIKE TO HAVE US PROVE IT, WE WILL GLADLY SEND ONE ON APPROVAL.

ACE CORD RUBBER BELTS DO NOT STRETCH, DO NOT BREAK SUDDENLY

Precision TRADE ★ MARK Parts

LINOTYPE PARTS COMPANY

NEW YORK
203 Lafayette Street

KANSAS CITY
314 West 10th Street

CHICAGO 318 West Randolph St.
MINNEAPOLIS 503 Fourth Ave., South
DENVER 1441 Blake St.

needed, the mat may be placed in the pre-warming box until the stereotyper is ready to make the cast. It is not necessary to scorch the mat as long as it is kept in the pre-warming box.

Cramer Time Relays

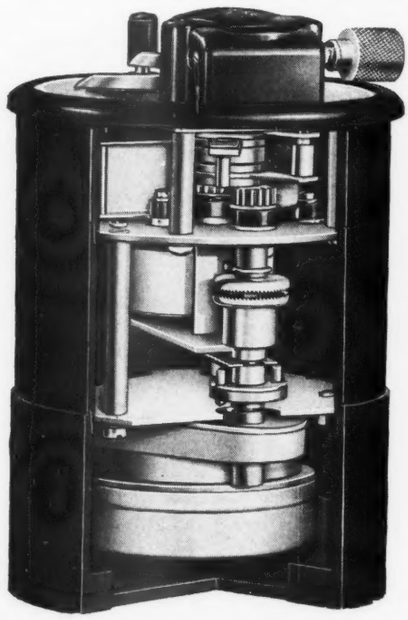
The new Cramer Time Relays, Type RS1C and TD1C are synchronous motor-operated timers which either keep an electrical circuit closed for a preset time interval or, in the case of the TD1C, can be used as time delay relays which when energized keep a circuit open for a selected interval. These timers have an instantaneous reset feature and when restarted they repeat the timing without manual resetting. They are available with inbuilt manual start button or can be supplied for remote control start button. Auxiliary contacts can be furnished, for instance, for audible or visual signal circuits.

These relays may be used in every kind of machinery or industrial process which must be time-controlled or for electrical circuits where a time delay action is required.

The Type RS1C and TD1C Time Relays consist of a synchronous motor unit which rotates a switch operating arm when the magnetic clutch mechanism is energized. When the clutch magnet is deenergized, it releases the switch operating arm, returning it instantly to a starting position by means of a reset spring.

The RS1C or TD1C Time Relays can be mounted in any position.

(1) The Clutch — Two cup shaped, fine-toothed clutch members, are actuated by a small electro magnet, the armature of which carries a leaf spring which serves as the actuating member. This assembly is carefully counter-balanced with a second spring to absorb all shocks. A small force is sufficient to reliably actuate the clutch, and needing less force, reduces wear and tear. The sturdy



milled clutch teeth prevent slippage of the clutch and yet provide a quick and reliable disengagement.

(2) A micrometer adjusting knob with a fine worm gear moves a pointer across the dial at a slow rate. Very accurate settings of the timer can be made with little effort.

(3) An additional pointer, mounted on the control shaft, rotates with the switch operating member and shows at all times how much of the cycle has elapsed or the time it takes before the switch trips. This progress pointer instantly resets with the switch arm and when the timer is deenergized, the progress pointer is directly above the time pointer which indicates the time setting on the timer.

(4) The contact of the RS1C or TD1C Timer can be operated manually at any time by turning the micrometer setting knob until the operating lever operates the switch unit.

(5) Standard construction provides adequate dust protection for the essential operating units. Completely dustproof enclosures are available.

The main switch unit is a quick-make, quick-break type with silver contacts rated 10 amp., 115 v. or 5 amp. 220 v. or 3 amp. 440 v. a.c. This switch will operate satisfactorily a ½ h.p. motor load, 1000 w. heater load or 250 w. lamp load.

The synchronous motor is a precision built, slow speed, 450 r.p.m., self-starting type with a completely dust-tight enclosed gear train.

about what metal you can use during war-time shortages of copper — with no sacrifice of printing quality — the answer is

EDES ENGRAVING METALS

TRIPLEMETAL

PAT. APP. FOR

for line, combination, or half tone work up to 150 screen.

The EDES Manufacturing Co.
PLYMOUTH, MASS.

AUTHORIZED REPRESENTATIVES

AKRON: Metzger Photo Supply Co.
ATLANTA: Chemco Photoproducts Co.
BOSTON: Allan B. Croke Co.
BUFFALO: C S. Illingworth
CHICAGO: Chemco Photoproducts Co.
CINCINNATI: G. C. Dom Supply Co.
DETROIT: Eaton-Clark Co.
NEW ORLEANS: Chemco Photoproducts Co.
RICHMOND, VA.: E. H. Walker Supply Co.
SAN FRANCISCO: J. W. Feinstein
ST. LOUIS: Mid-West Photo-Eng. Supply Co.
WASHINGTON, D. C.: E. H. Walker Supply Co.
DENVER, MINNEAPOLIS, TULSA, WICHITA, MEMPHIS, DALLAS, OMAHA, KANSAS CITY, OKLAHOMA CITY, DES MOINES, HOUSTON, SAN ANTONIO | Thompson-Hayward Chemical Co.

WOOD DRY MATS
ALWAYS UNIFORM

"Say, this is just like the service we get from the WOOD MAT people!"

WOOD FLONG CORPORATION
HOOSICK FALLS, N. Y.
551 Fifth Avenue New York City

Ihle Testimonial Dinner

In recognition of his 56 years association with R. Hoe & Company, approximately 127 executives, employees and friends of Conrad (Cooney) Ihle gathered in the Grand Ball Room of Hotel Abbey, New York, on Saturday evening, January 10.

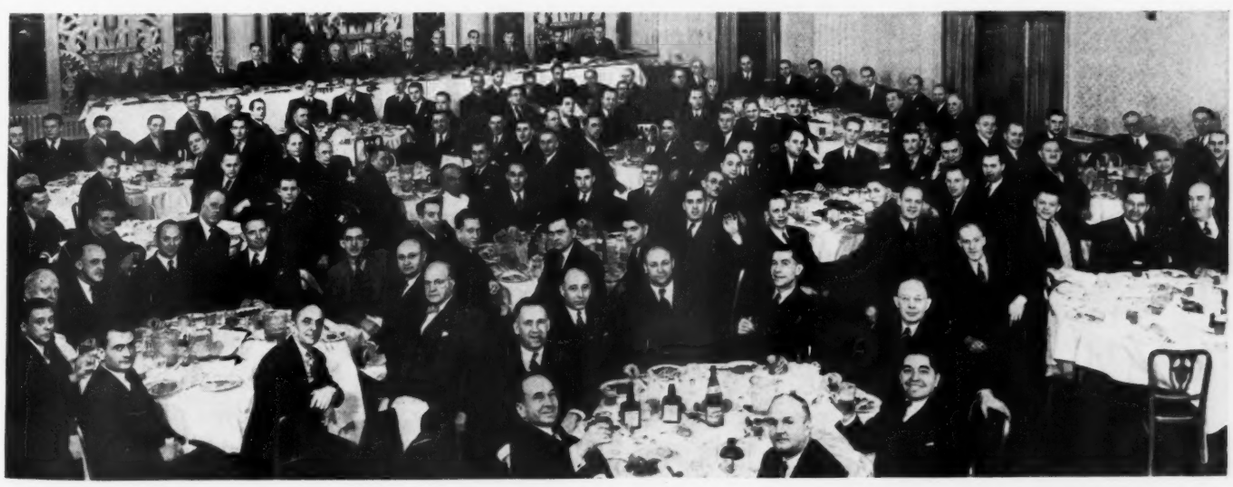
An important slant on the assemblage was that of the 125 employees present at the dinner, the average years of employment with the Hoe Company was 24 years each.

"Rudy" Gressner presided as toastmaster during the speaking program. Alfred Peabody, Business Agent of the Printing Press Div. of the International Machinists' Union was an invited guest and one of the speakers, as was Pressroom Superintendent Walter Ogden of the Cleveland *Press*. The keynote of the program was that when Mr. Ihle first entered the employ of R. Hoe & Company 56 years ago he considered it only a temporary job.

½ in. Wide Divider

New ½ in. wide Fountain Dividers have been announced by The Flinker Ink Divider Company, in addition to its regular 1 in. wide divider. The new narrow width Flinker Divider is made from a material called Plastocal which is said to be impervious to printers' ink. The plastocal can be adjusted by means of screws on the bracket. The leak-proof fountain divider also is said to prevent any damage being done to either the fountain roller or the blade.

Group picture taken in honor of Conrad Ihle in celebration of his 56 years' association with R. Hoe & Co., at Hotel Abbey, New York, recently. Mr. Ihle's "temporary employment" has lengthened itself into fifty-six years of continuous service for the company.



BOOKS
RECEIVED

Static Electricity

DEALING with static electricity for industry in general, the National Fire Protection Association has published a well illustrated booklet entitled *Static Electricity*. It is the thought of *Printing Equipment Engineer* that a copy of this booklet should be in the hands of every printing plant executive.

The Committee on Static Electricity of the Association presents its findings in this revised draft of the 1937 edition. The committee has incorporated numerous changes as the result of suggestions submitted to the committee. In addition, new developments in the field are covered. The report has been prepared in as nearly non-technical language as possible.

During recent years, static electricity has been recognized as the cause of many serious fires and explosions with resultant loss of life.

Contents of the pamphlet are: (1) Theory of Static Electricity; (2) Processes Where Static Electricity is a Hazard, including storage and handling of flammable liquids, transmission machinery, fibres and dusts, discharge of gases and vapors, printing and lithographing, and operating rooms; (3) Workmen Hazards; (4) Prevention of Static Accumulations; (5) Instruments for Detecting, Measuring and Recording Static.

Static Electricity—Published by National Fire Protection Association, 60 Batterymarch St., Boston, Mass. Illustrated booklet, 6 in. by 9 in., 52 pages with cover. Price, 35c per copy.

The Book of Reference

A unique book of high utility to printers, mechanical and production executives, advertising agency layout men and production managers is that entitled *The Book of Reference*. This book was devised by Gale Craig, a representative of the Cleveland Paper Company, dealers and suppliers of paper stocks. It is being supplied to one paper dealer in each town who may want it as a means of assisting his customers in bringing together the proper halftone illustration for a certain kind of paper, or conversely, the proper kind of paper can be fitted to existing halftone cuts.

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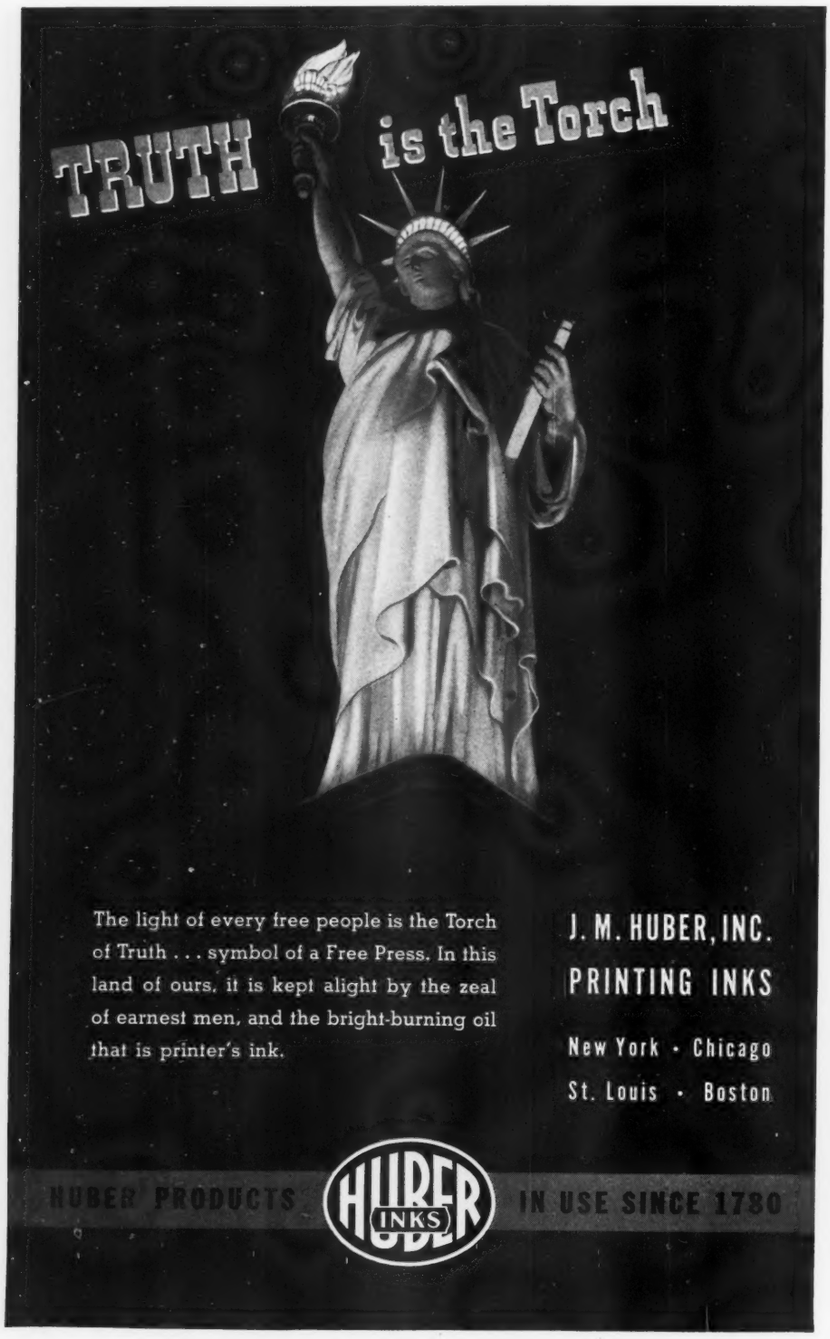
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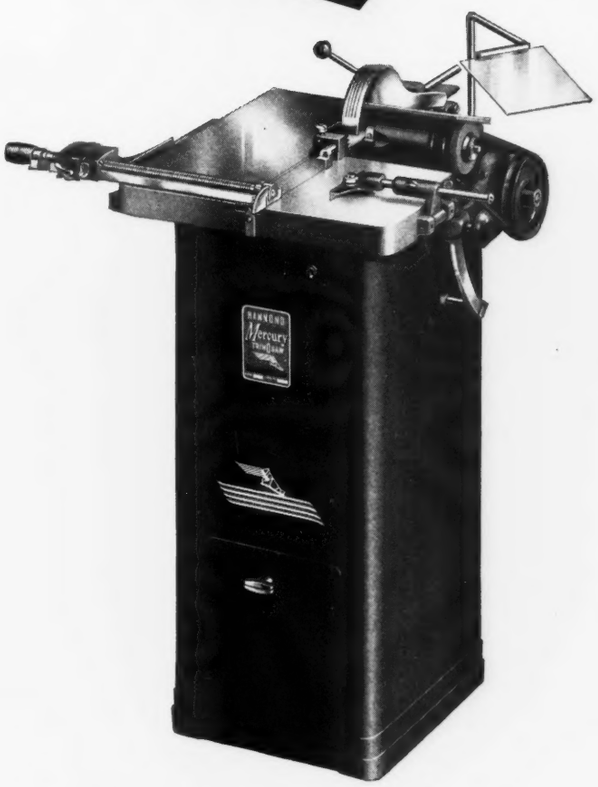

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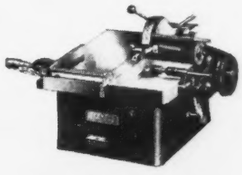

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PRINTING PATENTS REPORT

Covering patents issued December 30, January 6, January 13, January 20.

This data is compiled exclusively for *Printing Equipment Engineer* by Invention, Inc., is verified in the United States Patent Office, and is comprehensive of all patents in the field of each heading continuous from the last published issue of this magazine.

For copies of patents listed here, specify the patent numbers and send 10c each (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

Composing Room Equipment:

2,270,034. WASTE METAL CATCHER FOR TYPE CASTING MACHINES wherein the receptacle of the waste metal catcher is suspended from an overhead support instead of being mounted on the usual under-slung brackets secured to the machine. This permits easier access to the machine for adjustments and leaves an unobstructed space below the support when the catcher is removed. Invented by George L. Curle, Minneapolis, Minn. Unassigned. Application May 12, 1941. 12 claims.

Feeding, Folding, Delivery:

2,267,784. SHEET FEEDER OF THE CONTINUOUS TYPE, having a separating and forwarding mechanism by means of which the sheets are successively advanced off the top of the bank by pneumatic suckers and stretched transversely at the same time. This provides pre-registry of sheets before presentment to the conveyor. Other improvements result in increased capacity, higher operating speeds and easy replenishing of stock, because of low elevation of top feed board. Invented by Frank R. Belluche, Racine, Wis. Unassigned. Application October 30, 1939. 74 claims.

2,268,111. SHEET SLITTERS OR PERFORATORS for sheet feeding presses, which act on the sheets during the period when they are under full control, thereby obviating the possibility of imperfectly slitted sheets. The invention comprises three major components, consisting of sheet slitting means, cylinder protecting means and sheet dividing means. In addition, the invention provides means for guiding the application of the cylinder protecting means to the cylinder. Invented by John A. Davidson, Brooklyn, N. Y. Unassigned. Application June 26, 1939. 14 claims.

2,268,304. CONVEYOR FOR NEWSPAPERS, by means of which two distinct streams may be conveyed from two delivery points of a press to two delivery tables in another room, by use of a relatively small number of conveyor belts. To accomplish this, the two streams are first conveyed by two different conveyors to a point relatively close to the press where they are brought together to form a single composite stream, and this composite stream is conveyed by common conveyor belting to a point relatively close to the delivery tables, where it is separated into its component streams which are then conveyed by separate conveyors to the respective delivery tables. In this way, common conveyor belting is used for both streams over the major portion of the distance from the press to the delivery tables, and considerable economy in belting achieved. Invented by Harold H. Rapley, Bedford, England. Unassigned. Application January 31, 1941. 13 claims.

2,268,600. APPARATUS FOR AUTOMATICALLY DEPOSITING INSERT BLANKS, such as subscription cards, or envelopes within a series of signatures so that a succession of inserted signature groups is accumulated and conveyed onward for binding or stapling into pamphlets or similar products. The apparatus folds, feeds and deposits such blanks at a definite position in each pamphlet so that they may be subsequently stapled to the other sheets to prevent accidental removal, or else placed between staples so as to remain unattached and thereby facilitate removal. Invented by Paul E. Kleineberg, Easton, Pa. Assigned to T. W. & C. B. Sheridan Co., New York, N. Y. Application July 25, 1940. 25 claims.

2,268,980. WEB TENSION CONTROLLING DEVICE, by means of which friction is applied to the surface of a web roll from a source of power through a variable clutch so as to effect a continuous control of the web and maintain its tension constant regardless of the various other factors which may tend to cause a variation in the tension of the web. Constant tension is maintained by varying the pressure of the friction member against the surface of the web roll, the variation in pressure being induced by transmitting varying quantities of power from a constantly operating motor. The device is particularly adapted for use with high speed printing presses and can be operated from any prime mover such as an alternating current motor, and requires no relatively heavy current supply to effect the desired control. Invented by Hobart N. Durham, Manhasset, N. Y. Assigned to The Goss Printing Press Co., Chicago, Ill. Application May 4, 1940. 12 claims.

2,270,475. RETRACTABLE RULE FOR PLATEN PRINTING PRESSES which may have perforating edges to make it a perforating device of the paper being printed upon, or may have a line ruling edge to press a bendable or foldable line into the printed paper. The rule is so constructed that it may be projected above the plane of the printing type or retracted below this plane. Features of the invention are a unitary assembly of the rule, a series of stationary cam surfaces in the rule holder, complementary cam surfaces on the underside of the rule so that the rule may be elevated, and a spring for retracting the rule. Invention also employs a rocking device in the form of a bell crank pivotally mounted in the holder which, when actuated to rotate or oscillate in one direction, shifts the rule for the interengagement of the cams and thus raises the rule while sliding it transversely. Invented by Harry O. Reinsch, Compton, Calif. Unassigned. Application October 8, 1940. 8 claims.

Miscellaneous:

2,267,760. TEXTILE PRINTING COMPOSITION containing a coupling component and a diazo-amino compound obtained from the reaction of an alkoxy substituted aromatic amine suitable for the production of azo dyestuffs with dicyandiamide. Invented by Jacob B. Shohan, West Orange, N. J. Assigned to May Chemical Corp., Newark, N. J. Application March 30, 1936. Renewed March 25, 1939. 9 claims.

2,268,593. QUICK SETTING HOT-MELT PRINTING INK for letterpress, litho and gravure printing, comprising a pigment dispersed in a normally hard waxy thermofluid solid which melts at a temperature of between 50 and 70 deg. C. The waxy solid is composed chiefly of gilsonite and candelilla wax or of a thermoplastic resin. Example. Parts are by weight. Carbon black—10; Gilsonite—45; Candelilla wax—45. Invented by Walter Huber, Locust, N. J. Assigned to J. M. Huber, Inc., New York, N. Y. Application August 30, 1937. 11 claims.

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2,268,594. PROCESS OF LETTERPRESS PRINTING, employing a thermo-fluid ink which is melted to fluid consistency by a high temperature, and then applied as a thin film to a heated form, thereafter to be impressed on the paper. The ink on the printed web is set by solidifying instantly when the web leaves the heated surfaces and gives a resulting print resistant to smearing, marring and offset. An example of a rotary black ink employed is as follows. Parts are by weight. Hydrogenated rosin ester gum—62; Carnauba wax—18; Carbon black—16; Toner—4. Melting range 158 to 167 deg. F. Invented by Walter Huber, Mount Kisco, N. Y. Assigned to J. M. Huber, Inc., New York, N. Y. Application August 3, 1939. 18 claims.

2,268,595. HOT-MELT PRINTING INKS FOR LETTER PRESS PRINTING, characterized especially by the fact that they are stable and do not vary during use at elevated temperatures. The inks have a fluid consistency suitable for printing when temperature is raised substantially above their melting points. Example of a black printing ink. Parts are by weight. Cumar resin (V)—56; Blown soya bean oil—20; Carnauba wax—10; Carbon black—10; Violet toner—2; Blue toner—2. Melting range 136 to 145 deg. F. Other proportions will yield controlled melting points for the ink. Invented by Walter Huber, Mount Kisco, N. Y.; Frank G. Breyer, Wilton, Conn.; and Lothian M. Burgess, St. Albans, N. Y. Assigned to J. M. Huber, Inc., New York, N. Y. Application September 20, 1939. 19 claims.

Plate Making:

2,270,712. IMPROVED METHOD OF DEEP-ETCHING LITHOGRAPHIC PLATES whereby smooth grain, easier control and continued etching activity are obtained. This is accomplished by etching the developed plate with a saturated solution of magnesium chloride containing 2 to 5% by weight each of formic acid and glycollic acid and then treating the plate with a 1 to 5% water solution of gluconic acid. Invented by William H. Wood, Bedford, Ohio. Assigned to Harris-Seybold-Potter Co., Cleveland, Ohio. Application April 12, 1940. 11 claims.

Printing Presses and Equipment:

2,267,892. INK APPLICATOR FOR A ROTARY INTAGLIO PRINTING PRESS, comprising a trough shaped member adapted to be positioned beneath the printing cylinder and having a rearward arcuate cleaning section, including a centrally disposed ink distributing section and a forward arcuate ink applying section which is adapted to form a wedge-shaped body of ink on the surface of the printing cylinder. The ink is maintained against the rotating cylindrical surface with progressively increasing amounts of pressure so that the lowest portion thereof continues a cleaning action and the highest pressure portion effects a complete filling of the engraving cells with ink. Invented by Arthur P. Bamford, Millburn, N. J. Assigned to Champlain Corp., Garfield, N. J. Application July 31, 1940. 10 claims.

2,267,975. SPRAY APPARATUS FOR SPRAYING SMUDGE ELIMINATING FLUID onto the impression cylinder to prevent smudging in presses printing both sides of the sheet. The spraying method replaces the method of applying smudge eliminating fluid to the impression cylinder by rollers, the latter having been found unsatisfactory. Present device provides more even application to the cylinder. Invented by Dale J. Heck, Columbus, Ohio. 30% assigned to Hugh J. Mooney, Columbus, Ohio and 10% assigned to Paul J. Steinberger, Worthington, Ohio. Application March 13, 1939. 1 claim.

2,268,191. NOVEL NON-STOP ROTARY FUDGE PRESS or printing attachment in which means are provided for alternatively driving two plate-carrying cylinders and for moving them alternatively into printing relation with a cooperating printing cylinder. In accordance with the invention, the web of paper to be printed is passed over an impression cylinder before or after it has received the principal impressions from the usual rotary printing couple, and a pair of cylinder shafts are provided upon which one or more rotary printing cylinders may be adjustably positioned and adapted for alternating cooperation with the impression cylinder, means being provided for alternatively driving these printing cylinders into proper registering relation and for moving one set of the printing cylinders out of printing relation with the impression cylinder as the other set of printing cylinders is moved into printing relation. This enables the late news or other supplementary printing matter to be plated on the inoperative set of printing cylinders while the press is being operated and other late news is being printed by the other set of printing cylinders. Invented by Curtis S. Crafts, Oak Park, Ill. Assigned to The Goss Printing Press Co., Chicago, Ill. Application July 24, 1940. 9 claims.

2,268,985. METHOD AND APPARATUS FOR DRYING PRINTING INK which has been applied to a waxed paper or other paper having a coating of glue on its imprinted surface, which would be injured by a moderate amount of heat. Injury is prevented by keeping the paper from becoming too hot, although its printed surface is subjected to enough heat to volatilize the solvent of a quick-drying ink. The drier, located in the path of the printed web, has means for directing intense heat upon the printed surface of the web and simultaneously for withdrawing heat from the web through its opposite surface by means of a cooling gas. Invented by Frederic O. Hess, Germantown, Pa. By mesne assignments to Interchemical Corp., New York, N. Y. Application December 29, 1937. 8 claims.

2,268,986. METHOD AND APPARATUS FOR DRYING PRINTING INK wherein the printed web is dried by passing it beneath a source of heat, the intensity of which is automatically varied in accordance with the speed of web travel. The source of heat preferably comprises an elongated flame which may be adjusted in width to correspond with the width of the web or the printed portion thereof, the flame being adapted to strike the web with sufficient force to move the volatilized solvent to either side. Fresh air is then supplied on both sides of the flame for aiding in the combustion of the solvent vapors adjacent the surface of the web. To prevent scorching or burning of the web when the press stops, burners are employed which have a very low heat storage capacity. An increased flow of fresh cooling air is supplied during stopping periods, while faster withdrawal of heated air and hot burned vapors from the region of the web is simultaneously effected. Invented by Frederic O. Hess, Germantown, Pa. and Carl P. Mann, Riverton, N. J. Assigned by mesne assignments to Interchemical Corp., New York, N. Y. Application May 3, 1938. 31 claims.

2,268,987. VENTILATION OF AN APPARATUS FOR DRYING INK ON A PRINTED WEB, whereby the efficiency of the drier may be greatly increased and previous difficulties completely overcome, by arranging the cooling air ducts for the burners in such a manner that the cooling air does not pass directly into the combustion chamber. This arrangement is based on the finding that, in most cases, a certain amount of air for aiding in the combustion of ink solvents passes into the furnace with the web as it is fed therethrough, and that additional air for completing the combustion of the ink solvents may be supplied by deflecting regulated amounts of the cooling air into the combustion chamber. Invented by Frederic O. Hess, Germantown, Pa. and Carl P. Mann, Riverton, N. J. Assigned by mesne assignments to Interchemical Corp., New York, N. Y. Application January 6, 1939. 15 claims.

2,268,988. METHOD AND APPARATUS FOR DRYING PRINTING INK, claimed to have increased efficiency and flexibility for changes of operating conditions and materials and adapted for use on all web presses regardless of their size. The web, having applied thereto a printing ink containing a volatilizable and inflammable solvent, is moved over a supporting drum heated to a temperature less than 100 deg. C. and while the web is in contact with such drum, the freshly printed ink is heated and dried with a combination of gas flames, heated gases being simultaneously projected against the freshly printed ink at high velocity. Invented by Frederic O. Hess, Germantown, Pa. and Carl P. Mann, Riverton, N. J. Assigned by mesne assignments to Interchemical Corp., New York, N. Y. Application August 8, 1939. 15 claims.

2,269,836. VENTILATION OF AIR SURROUNDING ROTARY INTAGLIO PRINTING PRESSES and method of conditioning printed webs, wherein the side

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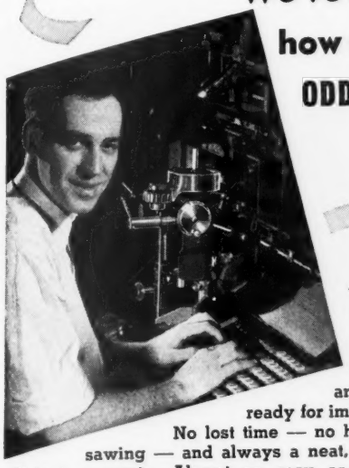

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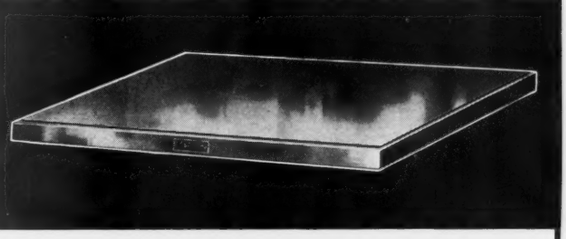

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frames of the press are utilized for the housing of ducts for supplying a web treating medium and for exhausting such medium together with the solvent vapors from the ink. Such an arrangement dispenses with cumbersome structures for supplying pipes and makes possible easy access to the printing units. Invented by Adolph Weiss, Brooklyn, N. Y. Assigned to Champlain Corporation, Garfield, N. J. Substitute for abandoned application Ser. No. 126,765, February 20, 1937. This application May 7, 1940. 16 claims.

2,270,082. PNEUMATICALLY CONTROLLED TRIPPING MECHANISM for printing presses which is dependent on the feeding condition of the sheets to be printed. Tripping of the printing press is accomplished both when a sheet fails to be fed or becomes mispositioned on the sheet transfer table during the downstroke of the impression cylinder, or likewise during the upstroke of the impression cylinder. Invented by Maurice E. Pearsall, Venice, Calif. Assigned to Miehle Printing Press & Mfg. Co., Chicago, Ill. Application December 9, 1940. 11 claims.

2,270,145. AUTOMATICALLY OPERATED REGISTER GAUGE, adapted to be attached to the tympan of a flat bed printing press and causing accurate registration of the sheet without precise manual adjustment, thus permitting greater speed of operation of the press. Invention by Leslie C. Sparks, Galva, Ill. Unassigned. Application February 19, 1940. 3 claims.

2,270,272. PRINTING PRESS CONVERTIBLE BETWEEN OFFSET AND LETTERPRESS PROCESSES, wherein the blanket and type segment are interchangeable upon one cylinder and the lithographic plate of another cylinder is utilized as an ink conveying or transferring surface in the train of rollers that are employed to supply the type segment with ink. According to the invention, these different classes of printing processes are performed without need for changing the ink mechanism of the press. Invented by William Ward Davidson, Evanston, Ill. Unassigned. Application July 25, 1940. 10 claims.

2,270,273. PRINTING PRESS CONVERTIBLE BETWEEN OFFSET AND LETTERPRESS PROCESSES employing a small cylinder disposed above a larger one, whereby change of the inking mechanism of the press becomes unnecessary. It is possible, for instance, to convert a two-cylinder offset press into a direct or type press, by removing the blanket from the blanket cylinder and slipping a cast type plate endwise onto this cylinder, the frame work of the press being cut away to permit this. The lithographic plate is then removed and a composition covering is fastened in its place. This covering is preferably surfaced with a material similar to that upon the offset form roller so that in operation for letterpress, the form roller becomes in substance a second distributor roller and the covering becomes the form roller. Thus, when the conversion is made for direct and letter type printing, the inking system remains physically unchanged although greater distribution is had, and it is only necessary to remove the water form roller from contact with the cylinder to place the press in full operation for direct printing. Invented by William Ward Davidson, Evanston, Ill. Unassigned. Application September 6, 1939. 6 claims.

2,270,374. INTAGLIO PRINTING PRESS, having a presser roll covered with rubber and without any system of nippers. For gripping the sheet accurately, the present invention provides that the rotation of the printing roll be stopped before the presser roll is pressed against the surface of the printing roll or, more correctly, against the sheet of paper which is engaged at that instant between the presser roll and the printing roll. The rotation of the printing roll is obtained in any known manner. However, the driving force is not stopped when the roll stops, but continues to act on the roll uninterruptedly in the direction of the rotation through a friction or other non-rigid transmission. The stopping of the printing roll at a predetermined spot of its circumference is effected by the downward movement of the pressure system, before the presser roll comes into proximity with the printing roll. Invented by Georges Kanitz, St. Cloud, France. Unassigned. Application October 23, 1939. 6 claims.

2,270,436. BALL BEARING PRINTING ROLLER for job presses or small sized presses where the diameter of the roller is 1½ in. to 3½ in., comprising a solid shaft provided with a shoulder. The inner ring of a ball bearing abuts against the shoulder and the outer ring of the ball bearing abuts against the outer edge of the roller core cylinder. An internally threaded cap is screwed upon correspondingly threaded outer end portions of the cylinder so that the flange of the cap will hold the outer ring of the ball bearings tightly against the outer edge of the cylinder. Balls are interposed between the two bearing rings and when the outer ring is in tight position with respect to the cylinder the inner ring is in tight position against the shoulder of the shaft. The shoulder on the shaft provides an abutment for engagement with the trunnions for the roller in the press. Once the roller core has been assembled, the composition is cast upon the core and the roller is ready for use. Invented by William C. Hart, Kew Gardens, N. Y. Unassigned. Application July 31, 1940. 8 claims.

2,270,485. CHANGE SPEED MECHANISM for printing presses which may be used to effect minute adjustments in the ratio of the speeds of a printing cylinder and impression member. Purpose is to compensate for variations in the effective diameter of the cylinder due to the slight variations in the thickness of printing plates applied to the surface of the cylinder and to compensate for variations in the effective diameter of a printing cylinder due to applied pressure. Invented by Gilbert C. Waters, Rochester, N. Y. Unassigned. Application June 10, 1939. 6 claims.

2,270,654. METHOD AND APPARATUS FOR QUICKLY DRYING PRINTING INK which has been applied to a web of cellophane, glassine etc., wherein the web is passed beneath a source of radiant heat, such as a gas burner and the heat is localized in the region of the web. This is accomplished by arranging a dark colored background such as a blanket or back-up sheet beneath the web and arranged to move with the web as it passes beneath the burners. A supporting drum with a black outside roller surface may also be used. The use of such a dark background is claimed to concentrate the heat from the burners on the web, and effectively dry the web. Invented by Carl S. Johnson, Park Ridge and Erick E. Walline, Chicago, Ill. Assigned to Interchemical Corporation, New York, N. Y. Application December 19, 1939. 7 claims.

2,270,698. ROLLER ADJUSTMENT for printing presses of the type wherein the inking roller is secured at the ends by a sliding member mounted in a guideway in the frame of the press and having a threaded pin provided with a nut for supporting the roller at the desired elevation. Invention provides a bracket attached to the press frame, carrying an adjusting screw which engages the horizontal legs of an inverted L-shaped hanger arm, the vertical leg of which is provided with an opening to loosely engage the threaded pin so that by merely loosening the nut and turning the adjusting screw, the threaded pin may be raised or lowered to effect adjustment of the inking roller. Invented by Aldon E. Crostic, South Richmond, Virginia. Unassigned. Application May 9, 1940. 1 claim.

For Patent Research in the U. S. Patent Office, or a prompt estimate on any type of search, address INVENTION, INC., Barrister Bldg., Washington, D.C.

Cambridge Precision Instruments

Four-page bulletin (List CEC) entitled *Cambridge Precision Instruments*, has been published by Cambridge Instrument Co., Inc. Among other recording instruments for various purposes is illustrated and described a, moisture indicator of the sword type for indicating the relative humidity of the atmosphere or moisture content of paper into which the blade is inserted.

How to select the best **ROUTING CUTTER**

All Royle Routing Cutters reflect advantages gained through more than eighty years in making these tools. Royle offers a complete line of cutters, of sound design, fine materials, and expert workmanship. ***Order direct or through your dealer . . Be sure it's a Royle.*** **Write for catalog 425.**

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Styles	*Blade Sections*	*Recommended for*
A		Electrotypes, stereotypes, wood
B		Zinc
C		Brass
D		Electrotypes and copper
E		Copper (Steel at reduced speed)
F		Zinc (Reinforced blade)
G		Brass (Reinforced blade)
H		Copper (Ground below center)
L		Zinc (Long blade)
M		Wood veining (No taper)

JOHN ROYLE & SONS 8 Essex Street, Paterson, N. J.

EQUIPMENT

SALES

Ludlow Installations

Ludlows have been installed recently by the Buffalo (N.Y.) *Courier-Express* (2 machines), Meridian (Miss.) *Star*, Charles City (Iowa) *Press*, Lincoln (Ill.) *Evening Courier*, San Jose (Calif.) *Mercury-Herald*, Regina (Sask., Can.) *Leader-Post*, Grand Haven (Mich.) *Daily Tribune*, Danville (Va.) *Register & Bee*, Kutztown (Pa.) *Patriot*, Woodland (Calif.) *Daily Democrat*, Fort Erie North (Ont., Canada) *Review*, Northampton (Mass.) *Daily Hampshire Gazette*, Watertown (Wis.) *Daily Times*, Red Bank (N.J.) *Daily Standard*, Superior (Wis.) *Evening Telegram*, Atlanta (Ga.) *Daily World*, Salem (Ore.) *Capital-Journal*, Vallejo (Calif.) *Times-Herald*, New Philadelphia (O.) *News*, and by the Sulphur Springs (Tex.) *Echo*.

Elrod Installations

Elrod lead, slug, rule and base casters have been installed recently by the San Francisco (Calif.) *Monitor*, Webster (Mass.) *Times*, Buffalo (N.Y.) *Courier-Express*, Regina (Sask., Canada) *Leader-Post*, Burlington (Vt.) *Daily News*, Salinas (Calif.) *Index-Journal*, Long Branch (N.J.) *Daily Record*, Pampa (Tex.) *Daily News*, Nyack (N.Y.) *Journal-News*, Fort Collins (Colo.) *Express-Courier*, Ardmore (Okla.) *Daily Ardmoreite*, Portsmouth (N.H.) *Herald*, Pekin (Ill.) *Daily Times*, Phoenix (Ariz.) *Republic & Gazette*, Miami Beach (Fla.) *Tropics*, and by the Passaic (N.J.) *Sunday Eagle*.

Recent Linotype Installations

Eight Master Model 31 Linotypes have been added by the Chicago News for production of the new Chicago *Sun*. The Louisville (Ky.) *Courier-Journal* and the *Times* have installed five Master Model 31 Linotypes. One or more Linotypes have been installed by Lamark Company, Inc., Little Rock, Ark.; Stuttgart (Ark.) *Daily Leader; Carroll Free Press* and the *Carroll County Times*, Carrollton, Ga.; Aetna Insurance Company, Hartford; Michiana Press, Inc., South Bend, Ind.; *Independent* and *Commercial*, Independence, La.; Pasadena (Texas) *Times;* Holland (Mich.) *Evening Sentinel;* Springfield (Mass.) *Union;* University of Toronto Press, Toronto; Pacific Printing Company, San Diego; Type Art Lino Service, New York, N. Y.; United States Engineers' School, Ft. Belvoir, Va.; Franklin Typographers, Chicago; *Twin City Daily Times*, Morehead City, N. C.; Taylorville (Ill.) *Daily Record;* Watonga (Okla.) *Republican;* Catskill (N. Y.) *Daily Mail;* Press and Plate Company, Cleveland; Drumheller (Alta.) *Mail; Times-Observer*, Sioux Lookout, Ont.; Nashville (Ark.) *News*.

Western Pennsylvania Representative — The Linotype Company announces the appointment of Edward D. Betts as its representative in western Pennsylvania, with headquarters in Pittsburgh. "Ed" Betts was graduated from the school of engineering of Cornell University in 1924, and joined the Linotype organization in 1929.

Recent Matrix Contrast Installations

During 1941, the Matrix Contrast Corporation, New York, made more new installations of its Black & White matrix contrast service than in any other year since 1929. Supplementing this statement, the firm has announced the following list of Black & White installations, all made during the last few weeks of last year: Pittsburgh (Pa.) *Sun-Telegraph*, Toledo (O.) *Blade* and *Times*, Binghamton (N.Y.) *Press*, Poughkeepsie (N.Y.) Newspapers, Condé Nast Press, and the Princeton University Press.

Talks to Several Clubs

Howard N. King, typographic counselor of Intertype Corporation is making addresses before the following organizations during the month of February: Southern Connecticut Craftsmen Club, 17th; Albany Ad Club, 18th; Worcester Craftsmen, 18th; Hartford Master Printers, 19th; Connecticut Valley Craftsmen Club, 20th.

Electric Heating Units and Controls

Electric heating units and controls for industrial application involving the heating of liquids, solids or air are described in a recently revised 38 page catalog announced by Westinghouse Electric and Manufacturing Company. Specifications, descriptions, ratings and prices of many types of heaters are covered. Among these are heaters for melting pots with temperature range up to 950 deg. F.; glue pots with a maintained temperature of from 150 deg. F. to 160 deg. F.; thermostats, switches, and contactors. Booklet contains 7 pages of application data and proper selection information in determining the most suitable types and sizes of electric heating units to meet many industrial requirements. A copy of Catalog 28-000 may be secured from department 7-N-20, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

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● Many familiar products are now unavailable, which imposes on advertisers the necessity of familiarizing buyers with other products, if the national economy is to be run in high gear and fulfill the dual function of war effort and support of a civil population to make such effort possible.

● Gratifying reproduction of fine pictures is the function of the newspapers in helping advertisers to meet this demand. In the greater number of publishing plants, the deep, sensitive molding qualities of Certified Mats are a valued resource in meeting the requirements of the hour.

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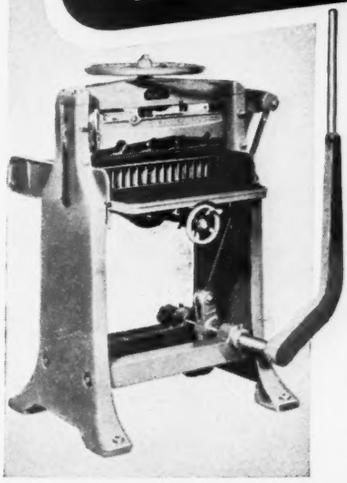

● New knife-bar linkage makes possible more work with less effort. Cut is completed without reaching or stooping. Single screw adjustment for setting knife to cut through bottom sheet of pack. Hollow knife bar of bridge construction has greater rigidity than solid bar of same weight. Solid side frames provide support for cutting table. These and many other advantages make the Craftsman 26½" Cutter a real money saver. Write for specifications.

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● *Champion Super*
● *Champion Book*

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Beneath this stack, experience, research and service are at your command.

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Baltimore Charlotte Dallas Havana Kansas City Manila New Haven San Francisco
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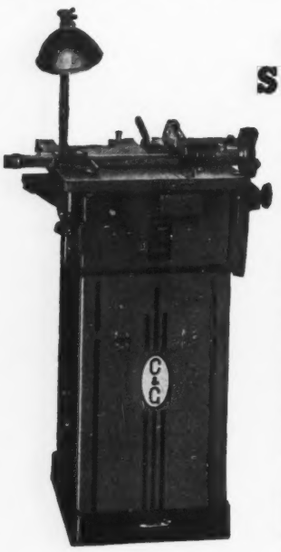
It is more important than ever that there be no WASTE MOTION in production methods. C&G equipment is designed for the utmost in speed and efficiency—to the order of the men who use it.



C&G NO. 3-A SAW TRIMMER

Compositors prefer the C&G Saw Trimmer because of the many exclusive features that make it easier and safer to operate.

These include Any Angle Gauge, Right and Left Hand Miter Vise, and C&G patented Universal Saw attachment. The C&G Positive Work Holder safely permits sawing of slugs to as little as 8 points in length. The Balanced Saw Arbor affords quick change from sawing and trimming slugs to undercutting or sawing plates.

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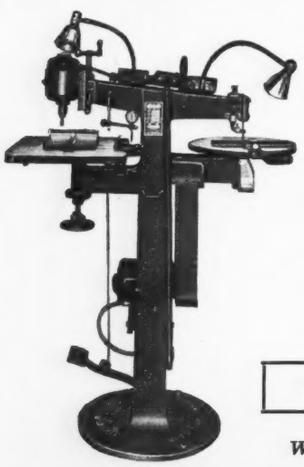

There is no need to hold up forms while you send plates out for mortising, changing key numbers, or making type corrections in plates.

You can do all this work in your own plant with the C&G Router, Jigsaw and Type High Machine. It will drill, rout, mortise for key numbers, make inside and outside mortises, or finish cuts to type high. It will work wood or metal mounted plates.

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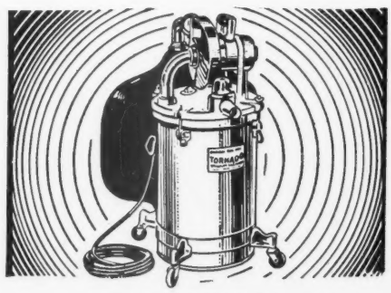

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Now 16⅔% MORE PACKING FELT for 8½% Less

This is the same SUPERIOR GLUtex gummed packing felt that this company has sold for years. Supplied in gauges .025, .030, .035 in 18" x 28"; in gauges .040, .045 in 18" x 24"; in gauges .050, .055 in 18" x 20"; in gauges .065 in 18" x 18" sheets—Superior Glutex.

1	2	3	4	5	6
Sheet 28"	Sheets 56"	Sheets 84"	Sheets 112"	Sheets 140"	Sheets 168"
15c	30c	45c	60c	75c	90c

168 Inches SUPERIOR 90c

18" x 24" SHEET. OTHER BRANDS PACKING FELTS

1	2	3	4	5	6	7
Sheet 24"	Sheets 48"	Sheets 72"	Sheets 96"	Sheets 120"	Sheets 144"	Sheets 168"
14c	28c	42c	56c	70c	84c	98c

168 Inches Other Brands 98c

AMERICAN PUBLISHERS SUPPLY—17 Stewart St., West Lynn, Mass.

Blackout Bulb

Designed for blackout lighting in air raids, the new Wabash Blackout bulb just announced by the Wabash Appliance Corporation, provides downlighting in a soft beam of blue light that is claimed to be safe for indoor visibility during blackouts. The bulb is lined inside with

a silver reflector lining that hides all filament glare and projects the light downward. Light leaks are prevented by a black silicate coating that covers the bulb up to the extreme lighting end which is a deep blue. The new bulb consumes 25 w.

This illustration was printed direct from an engraving automatically cut into the upper surface of a type high block cast from stereotype metal by the improved Engrav-O-Graph. The original photographic copy was 5 in. by 7 in.

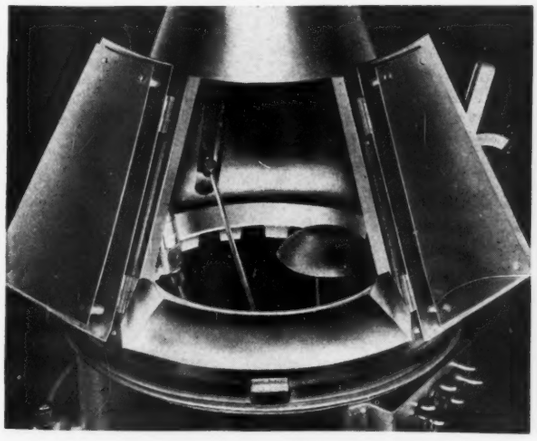
Improved Engrav-O-Graph

(Continued from Page 2)

the stroke of the machine for different size engravings. The present model will make up to 4 column cuts.

With this new development, it is claimed that 2 col. halftones can be made in about 15 min. and other sizes relatively longer. The projected image size determines the length of time necessary to complete the cut.

Developed in the experimental laboratories of the Lynch Corporation, the machine is the result of a number of years of research and experimental work under the direction of Joe A. Bennett, the inventor. Previous experiments in connection with the machine have been directed toward the use of photographic negatives for the production of halftones. The new development makes the machine more flexible in that enlarging and reducing are possible, it is claimed.



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The cooler the hood, the less are the heat losses. The toothed baffle-ring shown here is but one heat-saving feature. Others are the Quick-heat muffler, Duofold insulation and Thermostatic heat control. Add to these features the Jordan internal valve, Motorized agitator, Internal lighting for skimming and Continuous casting trough and you can see why this Big Chief Remelter will soon pay for itself.

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785 Bryant Street, San Francisco, Cal., 2448 E. 25th St., Los Angeles, Cal.

The Year 1942

by WALTER E. SODERSTROM*

*Executive Secretary, National Association of Photo-Lithographers.

THE year 1942 will sift out lithographic firms whose structure is filled with dry rot or lacking in management ability. We are in an unlimited emergency in the lithographic industry. Some lithographers will find it imperative to fight for their very existence during the changing economy now here. There will be an ever increasing shortage of supplies and materials and some may be cut off completely. The lithographer who is not supporting the work of some trade association can expect little help when the crucial day arrives.

Honest competition, reputation and standing in the trade become an increasingly valuable asset in troubled times. The small fringe of chiselers in every industry will find it difficult to secure materials and supplies to fill real orders. Only through close cooperation with a trade association can a lithographer hope to keep posted constantly on vital information concerning defense and the industry. Despite the fact that many firms in the industry are today enjoying the greatest volume of work in their history, they report little or no profit.

The lithographer should take steps today for defense tomorrow. He should:

1. Install, maintain and recognize the resultant information from a good cost system.

2. Insist with everyone in the organization that he must get an adequate return for every job sold.

3. Strengthen his working capital by whatever means possible, push accounts receivable for quicker payment. Put in additional cash to bolster working capital.

4. Discount bills, if it is at all possible. In a stringent market, the seller gives consideration to a buyer who can discount his bills. He too is being pressed by those who sell him.

5. Set aside, say, at least 1% of cash receipts in a bank account labeled "ABC Lithograph Company, for Taxes." Set up a direct reserve, not a simple bookkeeping entry.

6. Insure sufficiency of shop help during the emergency. Fair wages will be imperative.

7. Secure a reasonable inventory on supplies and materials but avoid hoarding.

8. Contact your trade association constantly for interpretation on government orders, questionnaires, tax information and the like.

STEEL ENGRAVING

(Continued from Page 26)

flaw in the design. Great care is necessary in the gradual application of pressure during this work or the metal will be unevenly displaced. Normally, metal will raise or flow to the surface between the lines and spread evenly in all directions when transferring operations are performed correctly.

Plates are finished; ridges are eliminated; imperfections in the metal repaired; the reverse side is made level and parallel to the face; and the plate curved if it is to be used on the rotary press. It is then hardened or plated and tempered, then tested for hardness just as were the roll and the die. Errors and defects in the press plate can be removed through the same means of correction as used for the die. Many kinds of defects appear in printing plates. Scratches, cracks, cuts, flaws, dents, corrosion or stains must be removed if they affect the printed piece. The press plate is subjected to pressure as well as abrasion due to the inking and wiping process. Lines on worn plates become thinner. It then becomes necessary to re-engrave the plate. An alternate method used in such a case lies in using offset-lith to obtain a printable image and running the copies off on the offset press.

Twenty to forty thousand impressions usually represents the normal life of the press plate in steel printing. Chromium plating lengthens the life of the plate, approximately doubling the runs possible. This is raised to more than a million by lifting the chrome film at about each 35,000 impressions and then replating.

An economical form of multiple plate is made from the die in one of two ways. One makes use of lead put into contact with the die under hydraulic pressure, the multiples thus formed being fastened together by a soft lead alloy. The alternate method makes use of the electrolytic plate, somewhat similarly produced to the electrotypes. This electrolytic plate when nickeled, yields nearly 30,000 impressions, the amount increasing when chromium plated.

It might be supposed from the above that the steel engraving method of printing is a costly one, and it is. Comparative limitations of the process hinge somewhat upon the lack of high production standards machinery. But it must be conceded that the method does present invaluable safeguards in the field of money, stamps and security printing. Having its limitations, the need for a thorough understanding of the Art to get the most out of it is compelled. Just as Pincus understood the situation when he was lost in Berlin. He rushes to a radio station asking for permission to broadcast a message. Denied, he finally obtained the privilege of saying one word. So he rushes up to the mike, grabs it and yells "Help."

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automatically cleans, polishes and applies graphite to all line-composing machine spaceband sleeves and long wedges. Thirty spacebands automatically cleaned and polished in 45 sec. Conserve spacebands and matrix side walls — rid yourself of the drudgery of hand-cleaning. Write for illustrated bulletin.

FULLER MACHINE CO., 17 Haigh Ave., Schenectady, N. Y.

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"ELECTROMATIC"
"DOMORE" "CLIPPER"
SAWS — ROUTERS — DIES
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free TECHNICAL INFORMATION and LITERATURE *for you*

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For information circle the number on the convenient postage-paid return card corresponding to the paragraph in which you are interested. Give your name and title, company name and address, then mail. Manufacturer or supplier will send mechanical and production executives latest information. Keep informed—there is no obligation.

Composing Room

1 SAW TRIMMER—Send for booklet on C&G No. 3A Saw Trimmer, and C&G Routing Jigsaw and Type High Machine. See page 44.

2 TELETYPESETTER—Circle this number for informative booklet on composition with Teletypesetter. See advertisement on page 38.

3 COMPOSING MACHINE—Manufacturer will be glad to send copy of new Linograph (50) Typesetting Machine Catalog. See advertisement on page 27.

4 NEWSPAPER PRESS EQUIPMENT — Wood Newspaper Machinery Company will be glad to answer questions regarding press and stereotype department equipment. See advertisement on page 25.

5 TYPE METAL—Imperial Type Metal Company tells how to help industry by keeping all printing metals within the printing field. See advertisement on page 21.

6 MOTORS FOR PRINTING PLANTS — For complete information on the General Electric Tri-Clad Motor, circle this number on card. Advertisement on page 9.

7 COMPOSING MACHINE — The solution of composing room problems or for information on Linotype machines. See advertisement on page 19.

8 AUTOMATIC SLUG SAW—Circle this number on card and you will receive a free copy of the booklet "Short Cuts with Odd Measures". See advertisement on page 41.

9 IMPOSING SURFACES—Send for complete information on the Challenge semi-steel imposing surfaces, including prices. See advertisement on page 41.

10 METAL FEEDER—Send for further information on the Star Self Actuating Metal Feeder. See advertisement, page 33.

11 COMPOSING MACHINE—Circle this number for further information on the use of Elrod for the making of strip material. See advertisement, page 3.

12 COMPOSING MACHINE — Intertype offers you a booklet entitled "An Ounce of Prevention is Worth a Pound of Cure" outlining a systematic checkup on Intertype. Advertisement on back cover.

13 SAW—Return reply card for bulletin describing Hammond new modern Mercury and bench model Mercury saws. See advertisement, page 37.

14 CUT CEMENT—The E. A. Booth Rubber Company will tell you how useful zinc cut cement can be to you, as advertised on page 37.

15 REMELTERS—To get data on United American Metals Big Chief Remelter, circle this number on post card. See advertisement, page 45.

16 MATRIX CONTRAST—To reduce errors in ad composition, circle number on post card. See Matrix ad, page 12.

Platemaking

17 STEREO SUPPLIES—Return post card for latest copy of Eastern Newspaper's catalog on stereotype equipment and supplies. See page 38.

18 DRY MATS—Certified Dry Mat Company offers an interesting booklet on plate duplication with dry mats. See advertisement, page 43.

19 PACKING FELT—American Publishers Supply offers samples of Superior Glutex Packing Felt. As advertised on page 45.

20 ZINC—Get the informative booklet "Getting Down to Zinc Facts" from Atlantic Zinc Works. See advertisement, page 39.

21 DRY MATS—To see their outstanding points, get a sample of Wood dry mats for newspapers as advertised, page 35.

22 DRY MATS—If you want a Burgess Chrome Mat salesman to call, circle this number on return card. Advertisement, page 40.

23 ROUTING CUTTERS—For your copy of the John Royle Catalog 425 on routing cutters, circle this number. Advertisement on page 42.

24 ZINC—Return post card for complete data on Edes metal for war time. See advertisement, page 34.

Pressroom

25 ROLLERS AND BLANKETS—For information on Vulcan press blankets and inking rollers, circle number on card. See advertisement, page 8.

26 PRESSES—Goss Printing Press Company will be glad to answer questions on Goss equipment. See advertisement, page 10.

27 PROOF PRESSES—This is a good time to get complete information on Vandercook Proof Presses. See advertisement inside back cover.

28 PRESSES—The Miehle Company will be glad to answer questions on Miehle equipment if you make your questions specific. See advertisement, pages 6-7.

29 OFFSET PRESSES—Harris-Seybold-Potter offers help in maintaining your offset equipment. Take your problem to them. Advertisement inside front cover.

30 PRINTERS ROLLERS—Detailed information on any specific roller question will be answered by the Ideal Roller Manufacturing Company. Use reply card. See advertisement, page 23.

31 NUMBERING MACHINES—Wetter Numbering Machine Company offers you a unique booklet "Numbering for Profit". See advertisement, page 33.

32 TWO COLOR PRESS—Complete information on Miller two-color press to be had by circling this number on the return card. See advertisement, page 11.

Paper and Ink

33 PAPER—Champion Paper & Fibre Company offers information on papers for advertising. See advertisement, page 4.

34 INK—For information on Eagle Printing Ink compiled by their color research laboratory, circle this number. See advertisement, page 44.

35 INK—If you are interested in any phase of news inks, note details on bottom line of card. See advertisement, page 46.

36 PAPER—Complete information on Gilbert Bond and Gilbert Ledger papers available to all printers. Circle this number and see their advertisement. page 1.

37 INK—Ask for literature on Sinclair & Valentine Champion Black. Advertisement, page 43.

38 INK—For complete information on Levey's Flashdri, Letter Press, Lithographic and Gravure inks, circle this number on post card. See insert this issue.

39 INK—Ask for literature on Huber inks. Advertisement on page 36.

Miscellaneous

40 BEARINGS—Data on SKF bearings available. Note how on bottom line of card. See advertisement, page 29.

41 CUTTERS—Specifications on the Chandler & Price 26½ inch Craftsmen's Lever Cutter available. See advertisement, page 43.

Section of the Vandercook Plant

NOW ON **WAR WORK** ALMOST EXCLUSIVELY . . .

BUT *we can still* **SHIP FROM STOCK!**

A large inventory of Vandercook Proof Presses and Premakeready Equipment was built up over a year ago and stored in a warehouse building especially constructed for the purpose. Most of the popular Vandercook and Hacker Equipment can be supplied promptly from this warehouse.

VANDERCOOK

PROOF PRESSES · BLOCK LEVELLERS · HACKER GAUGES

VANDERCOOK & SONS, Main Office and Plant, 900 North Kilpatrick Avenue, Chicago, Illinois
Eastern Branch: 216 East 45th Street, New York, New York Canada: Sears Limited, Toronto

HANG THIS UP IN YOUR COMPOSING ROOM

Around typesetting machines the cleaning cloth and the oil can should be inseparable. It is especially important, however, to keep oil and graphite away from the magazines and matrices to insure smooth operation.

DO YOUR BIT *by taking good care of your typesetting machine and matrices*

SHORTAGES of vital war materials are causing an increasing scarcity of new machinery and supplies. This situation will undoubtedly become much more severe as time goes on. The conservation of existing equipment, therefore, is a patriotic duty as well as a business necessity.

To users of line composing machines and matrices Intertype offers a few specific suggestions for the conservation of existing equipment, as follows:

Matrices. Much damage to matrices can be avoided by frequent and careful inspections. For example, losses caused by excessive wear on lugs can be minimized by keeping all transfers properly adjusted. Detailed instructions for preventing side wall damage and other pointers on preservation of matrices are contained in a booklet, *Maximum Service From Intertype Matrices*, which is available on request.

Spacebands. Keeping the spacebands clean and in good repair is particularly important. At least one cleaning for each shift is recommended.

Magazines. Keep magazines clean, free from oil, and in good repair to insure maximum service.

Lubrication. Finally, and most important, keep your machines clean and well lubricated. Replace worn parts before they cause damage. A booklet entitled *An Ounce of Prevention Is Worth a Pound of Cure*, which outlines a systematic checkup, will be sent on request. Write to INTERTYPE CORPORATION, 360 Furman St., Brooklyn, N. Y., or nearest branch.

Conserve Existing Equipment and Help Win the War

UNIVERSAL INTERTYPE